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AVISO DE NOTIFICACION

CORREO CERTIFICADO

Radicación :	2-99179- 9-0 Fecha: 2008-10-27 08:48:19
Trámite :	11 PATENTEYII
Evento :	379 FASENACIONALI
Actuación :	432 COMUNICACTOADM
Destinatario :	DILIA MARIA RODRIGUEZ D'ALEMAN Folios 1

Señor (a) (es)
DILIA MARIA RODRIGUEZ D'ALEMAN
CARRERA 11 NO. 86-53 PISO 6
BOGOTA D.C.

00018069

REF.RESOLUCION :28192

FECHA : 28/10/2008
Expediente : 2-99179
Trámite : 11 PCT-PATENTE DE INVENCION CAPITULOS I Y II
Evento : 379 FASE NACIONAL INCLUIDO CAPITULO II
Actuación : 432 COMUNICACION ACTO ADMINISTRATIVO

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 de su notificación, la cual podrá ser consultada desde un computador con acceso a Internet, en la página 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

RESOLUCIÓN 28192

Por la cual se niega una patente de invención

Rad. N° 02-99179

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 31 de octubre del 2002 bajo el número 02099179, se presentó la solicitud de patente de invención titulada "POLIMEROS QUE CONTIENEN ALDEHIDO COMO ADITIVOS DE RESISTENCIA A LA HUMEDAD", para los efectos de que se dé comienzo a la fase nacional, en virtud del tratado de Cooperación en Materia de Patentes (PCT

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 126 a 144 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 se solicitó una prórroga, sin embargo, una vez vencido el término 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 "POLIMEROS QUE CONTIENEN ALDEHIDO COMO ADITIVOS DE



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Industria y Comercio
SUPERINTENDENCIA

REPUBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

RESOLUCION 28192

Por la cual se niega una patente de invención

Rad. N° 02-99179

RESISTENCIA A LA HUMEDAD*, que entró en fase nacional en virtud del Tratado de Cooperación en Materia de Patentes (PCT).

ARTICULO SEGUNDO: Notificar personalmente el contenido de la presente resolución a la doctora Dilia María Rodríguez D'Aleman, o a quien haga sus veces, en su calidad de apoderada de Sca Hygiene Products Zeist B.V., 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

26 OCT. 2005

EL SUPERINTENDENTE DE INDUSTRIA Y COMERCIO,

JAIR RUBIO ESCOBAR

Doctora
DILIA MARIA RODRIGUEZ D'ALEMAN
Carrera 11 N° 86 – 53 Piso 6.
Bogotá D.C.

202021

Sede Centro: Carrera 13 No. 27-00 Pisos 2, 5, 7 y 10
Sede CAN: Tr. 40A No. 38-50 Conmutador: 3820840
Fax: 382 26 95. Línea 0800-910 165
Web: www.sic.gov.co e-mail: info@sic.gov.co
Bogotá D.C. - Colombia

(12) **United States Patent**
Thornton et al.

(10) Patent No.: **US 6,582,559 B2**
 (45) Date of Patent: **Jun. 24, 2003**

(54) **ALDEHYDE-CONTAINING POLYMERS AS
 WET STRENGTH ADDITIVES**

(75) Inventors: Jeffrey Wilson Thornton, Huizen
 (NL); Dorine Liza Van
 Brussel-Verraest, Boskoop (NL); Arle
 Besemer, Amerongen (NL); Susan
 Sandberg, Onsala (SE)

(73) Assignee: SCA Hygiene Products Zeist B.V.,
 Zeist (NL)

(*) Notice: Subject to any disclaimer, the term of this
 patent is extended or adjusted under 35
 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/848,212

(22) Filed: May 4, 2001

(65) Prior Publication Data

US 2002/0026993 A1 Mar. 7, 2002

Related U.S. Application Data

(60) Provisional application No. 60/203,913, filed on May 12,
 2000.

(30) Foreign Application Priority Data

May 4, 2000 (EP) 00201630
 May 11, 2000 (EP) 00201693

(51) Int. Cl.⁷ D21H 21/20; D21H 17/24;
 D21H 17/25; D21H 17/28; C08B 15/00;
 C08B 31/00

(52) U.S. Cl. 162/175; 162/177; 162/174;
 162/158

(58) Field of Search 162/9, 157.6, 158,
 162/175, 178, 146, 165.17, 164.15, 164.6,
 168.1, 179, 174, 176, 177; 8/120, 181,
 108.1, 107, 116.1, 189

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Primary Examiner—Jose A Fortuna

(74) Attorney, Agent, or Firm—Burns, Doane, Swecker &
 Mathis, L.L.P.

(57) ABSTRACT

The invention concerns the use of a water-soluble or water-dispersible polymer having a molecular weight of at least 800, containing at least 5 aldehyde groups per molecule and at least 1 carboxyl group per molecule, the ratio of aldehyde groups to carboxyl groups being higher than 0.75:1, as a wet strength additive. The invention also discloses novel cationic derivatives thereof.

11 Claims, 6 Drawing Sheets

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activity) was added slowly using a pump running at 20 mL/min. The pH maintained between 4.7 and 5.3 by a pH controller adding 4 M NaOH. The temperature was kept between 15° C. and 20° C. After all chemicals were added, the solution was stirred overnight to ensure complete reaction. After reaction, the volume was reduced and part of the sodium acetate salts formed during reaction were removed using a membrane filtration unit (exclusion limit of 10000 D) to obtain a solution containing about 10% MACS. This procedure was executed 4 times, and the products were mixed. The reaction yield of MACS in the second oxidation step was 42 kg (87% of theoretical).

A solution (490 kg) containing 8.6% MACS was obtained. The polymer obtained in this way had similar characteristics regarding molecular weight and charge density as the material described in Example 1.

A tissue paper containing MACS was produced at a paper machine. See Example 10.

Example 10

Application in a Full Scale Tissue Paper Machine

With the MACS thus prepared (see Example 9), tissue paper was made on an industrial scale (continuous process) and the properties of the tissue were compared to those obtained with conventional wet strength agents.

Three kinds of tissues were made using the following composition of pulp: 65% TCF pulp (total chlorine free pulp) and 33% HTCTM pulp (high temperature chemi-thermomechanical pulp).

The first run was the reference, in which only PAE (9 kg/ton pulp) was applied. The second run was prepared using PAE (9 kg/ton pulp) and CMC, Hercobond C129 with a degree of substitution of 0.65–0.9, (1.7 kg/ton pulp). In the third run, PAE (9 kg/ton) and 1.7 kg MACS per ton were used. The results with regard to the dry strength, wet strength, and wet tensile index are summarised in Table 3.

TABLE 3

Wet and dry strength properties of tissue paper with PAE, PAE/CMC and PAE/MACS, respectively.				
Run	Tissue samples	Dry strength (Nm/g)	Wet strength (Nm/g)	Tensile strength index (%)
1	PAE(mL)	8.9	2.5	22.1
2	PAE/CMC	11.6	3.2	27.3
3	PAE/MACS	10.8	3.2	28.6

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As can be seen from Table 3, both MACS and CMC improve the properties of the tissue with regard to wet and dry strength and CMC and MACS exhibit the same properties.

We claim:

1. A method of improving wet strength of a paper, tissue or non-woven product, comprising applying a water-soluble or water-dispersible biopolymer having a molecular weight of at least 800, containing 0.25–2.25 aldehyde groups per recurring unit of the biopolymer and/or at least 5 aldehyde groups per molecule, and containing at least 1 anionic group per molecule, the ratio of aldehyde groups to anionic groups being higher than 0.75:1, as a wet strength additive.

2. The method of claim 1, in which the degree of substitution for aldehyde groups is 0.1–2.95 per recurring unit of the biopolymer, and the degree of substitution for anionic groups is 0.03–1.0 per recurring unit of the biopolymer.

3. The method of claim 1, in which the degree of substitution for aldehyde groups is 0.25–2.25 per recurring unit of the biopolymer, and the degree of substitution for anionic groups is 0.05–0.4 per recurring unit of the biopolymer.

4. The method of claim 1, in which the anionic groups comprise carboxylic groups.

5. The method of claim 1, in which the biopolymer is a polysaccharide.

6. The method of claim 5, in which the biopolymer is starch or cellulose or a starch- or cellulose-derived biopolymer.

7. The method of claim 5, in which the aldehyde groups and the anionic groups are present as a result of oxidation of dihydroxyethylene moieties of recurring monosaccharide units.

8. The method of claim 5, in which the aldehyde groups and the anionic groups are present as a result of oxidation of hydroxymethyl moieties of monosaccharide units.

9. The method of claim 1, in which anionic groups are present as a result of carboxymethylation.

10. The method of claim 1, in which the biopolymer further contains cationic groups with a degree of substitution of 0.01–0.50.

11. A cellulosic fibre treated with a biopolymer as defined in claim 1.

* * * * *



US006896725B2

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(12) **United States Patent**
Thornton et al.

(10) Patent No.: **US 6,896,725 B2**
(45) Date of Patent: **May 24, 2005**

(54) **ALDEHYDE-CONTAINING POLYMERS AS WET STRENGTH ADDITIVES**

(75) Inventors: Jeffrey Wilson Thornton, Huizen (NL); Dorine Lisa Van Brummel-Verrant, Bostkoop (NL); Arie Besemer, Amerongen (NL); Sussan Sandberg, Onsala (SE)

(73) Assignee: SCA Hygiene Products Zelt B.V., Al Zeist (NL)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 10/423,715

(22) Filed: Apr. 25, 2003

(65) Prior Publication Data

US 2003/0205165 A1 Nov. 6, 2003

Related U.S. Application Data

(62) Division of application No. 09/048,212, filed on May 4, 2001, now Pat. No. 6,582,559.

(60) Provisional application No. 60/203,913, filed on May 12, 2000.

(30) Foreign Application Priority Data

May 4, 2000 (EP) 00201630
May 11, 2000 (EP) 00201693

(51) Int. Cl.⁷ C08D 11/24; C08D 31/18; C08D 37/00; C08L 1/00; C08L 1/26; C08L 3/00; C08L 3/10; C08L 5/00; D21H 17/24; D21H 17/25; D21H 17/26; D21H 17/28; D21H 17/29; D21H 17/45

(52) U.S. Cl. 106/162.1; 106/162.5; 106/162.51; 106/172.1; 106/190.1; 106/163.01; 106/200.1; 106/200.3; 106/208.1; 106/208.4; 106/217.6; 524/27; 524/35; 524/43; 524/44; 524/45; 524/49; 536/56; 536/85; 536/89; 162/164.6; 162/175; 162/177

(58) Field of Search 106/190.1, 172.1, 106/200.3, 200.1, 163.01, 208.1, 208.4, 217.6, 162.1, 162.5, 162.51; 524/27, 35, 43, 44, 45, 49; 536/85, 89, 56; 162/164.6, 175, 177

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6,319,361 B1 * 11/2001 Smith et al. 162/146
6,368,456 B1 * 4/2002 Cimcioglu et al. 162/146
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* cited by examiner

Primary Examiner—David Brunzman
(74) Attorney, Agent, or Firm—Burns, Doane, Swecker & Mathis, L.L.P.

(57) ABSTRACT

The invention concerns the use of a water-soluble or water-dispersible polymer having a molecular weight of at least 800, containing at least 5 aldehyde groups per molecule and at least 1 carboxyl group per molecule, the ratio of aldehyde groups to carboxyl groups being higher than 0.75:1, as a wet strength additive. The invention also discloses novel cationic derivatives thereof.

11 Claims, 6 Drawing Sheets

composition are made but pressed at two different pressures, 0.5 bar and 5 bar. In this way we can compare them at the same density 400 g/m³.

4. Drying

The sheet is cut into four pieces and dried two and two with a fixed point for three minutes at a temperature of 140° C.

5. Cutting

The sheet is cut into 15 mm strips for testing of dry and wet strength. 100*100 mm is also cut out for measuring the thickness and Grammage.

6. Conditioning

The strips which wet strength is going to be tested are placed in a heating chamber, 105° C. for 10 minutes. Then both the strips for wet and dry strength are placed in a climate room, temperature 23° C., moisture 50% for four hours.

7. Grammage and Thickness

100*100 mm pieces of the sheet is used for measuring the Grammage and thickness. Grammage is measured on a regular balance on 4 layers to get an average. Thickness is also measured on four layers and on five different spots to get a good average.

8. Tensile Strength Measurement

The strength both wet and dry is measured in an Instron on SCAN-P58-86. Five 15-mm strips are measured to get an average. When measuring the wet strength the strip is soaked for 15 sec in tap water.

Example 9

Large-Scale Preparation of MACS and Application in a Full Scale Tissue Paper Machine

The preparation of MACS with 15% of the aldehydes oxidised to carboxylic acids, as described in Example 1, was scaled up to 40 kg scale.

In this first step, 100% dialdehyde starch (DAS) was prepared. Sodium periodate (27 kg) was dissolved in 200 L water in a double-walled 300 L vessel equipped with a mechanical stirrer. The solution was cooled to 5° C. To this solution, potato starch (25 kg, 20.5 kg dry matter) was added portion-wise, keeping the temperature below 10° C. The slurry was stirred for 24 hours at 5° C. Then, the sodium iodate salts were removed by decantation after settling of the DAS. The granules were washed with deionised water until no sodium iodate could be detected with potassium iodide and sulphuric acid. This procedure was repeated once and one more time using 21 kg sodium periodate and 20 kg starch. The overall yield of dialdehyde starch was 47 kg of DAS (82% of theory, due to some losses during the washing procedure).

In the second oxidation step, MACS was prepared. DAS (11.75 kg) was slurried in about 150 L deionised water in a 300 L double-walled vessel. Sodium bromide (1.41 kg) was added and subsequently peracetic acid (7.07 kg, 39% activity) was added slowly using a pump running at 20 mL/min. The pH maintained between 4.7 and 5.3 by a pH controller adding 4 M NaOH. The temperature was kept between 15° C. and 20° C. After all chemicals were added, the solution was stirred overnight to ensure complete reaction. After reaction, the volume was reduced and part of the sodium acetate salts formed during reaction were removed using a membrane filtration unit (exclusion limit of 10000

D) to obtain a solution containing about 10% MACS. This procedure was executed 4 times, and the products were examined. The reaction yield of MACS in the second oxidation step was 42 kg (87% of theoretical).

A solution (490 kg) containing 8.6% MACS was obtained. The polymer obtained in this way had similar characteristics regarding molecular weight and charge density as the material described in Example 1.

A tissue paper containing MACS was produced at a paper machine. See Example 10.

Example 10

Application in a Full Scale Tissue Paper Machine

With the MACS thus prepared (see Example 9), tissue paper was made on an industrial scale (continuous process) and the properties of the tissue were compared to those obtained with conventional wet strength agents.

Three kinds of tissues were made using the following composition of pulp: 65% TCF pulp (total chlorine free pulp) and 33% IITCTM pulp (high temperature chemi-thermo-mechanical pulp).

The first run was the reference, in which only PAE (9 kg/ton pulp) was applied. The second run was prepared using PAE (9 kg/ton pulp) and CMC, Hercules C129 with a degree of substitution of 0.65-0.9, (1.7 kg/ton pulp). In the third run, PAE (9 kg/ton) and 1.7 kg MACS per ton were used. The results with regard to the dry strength, wet strength, and wet tensile index are summarised in Table 3.

TABLE 3

Wet and dry strength properties of tissue paper with PAE, PAE/CMC and PAE/MACS, respectively.				
Run	Tissue samples	Dry strength (N/m ²)	Wet strength (N/m ²)	Tensile strength index (%)
1	PAE(ref.)	8.9	2.5	28.1
2	PAE/CMC	11.6	3.2	27.3
3	PAE/MACS	10.8	3.1	29.6

As can be seen from Table 3, both MACS and CMC improve the properties of the tissue with regard to wet and dry strength and CMC and MACS exhibit the same properties.

We claim:

1. A wet strength composition comprising a polysaccharide derivative containing 0.10-2.95 aldehyde groups and 0.03-1.0 anionic groups per recurring unit, and comprising a polymer containing cationic groups.

2. A wet strength composition of claim 1, in which the polysaccharide is starch or cellulose or a starch or cellulose-derived polysaccharide.

3. A wet strength composition of claim 1, in which the aldehyde groups and the anionic groups are present as a result of oxidation of dihydroxyethylene moieties of recurring monosaccharide units of the polysaccharide.

4. The wet strength composition of claim 1, in which the aldehyde groups and the anionic groups are present as a result of oxidation of hydroxymethyl moieties of monosaccharide units.

5. The wet strength composition of claim 1, in which anionic groups are present as a result of carboxymethylation and the aldehyde groups are present as a result of oxidation.

6. The wet strength composition of claim 1, in which said polysaccharide derivative and said polymer containing cat-

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ionic groups are the same and said polysaccharide derivative contains 0.10–2.95 aldehyde groups and 0.03–1.0 anionic groups, and 0.01–0.50 cationic groups per recurring unit.

7. A cellulosic fibre treated with a wet strength composition according to claim 6.

8. The wet strength composition of claim 1, comprising 10–90% of said polysaccharide derivative containing aldehyde groups and anionic groups, and 90–10% of the polymer containing cationic groups, the percentages being based on the total of polysaccharide derivative and polymer containing cationic groups.

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9. The wet strength composition according to claim 8, in which said polymer containing cationic groups is selected from cationic polysaccharides, polyethylenimine (PEI), and polyaminoamide-epichlorohydrin (PAE).

10. A cellulosic fibre treated with a wet strength composition according to claim 8.

11. A cellulose fibre treated with a wet strength composition according to claim 1.

* * * * *