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Declarations under Rule 4.17:

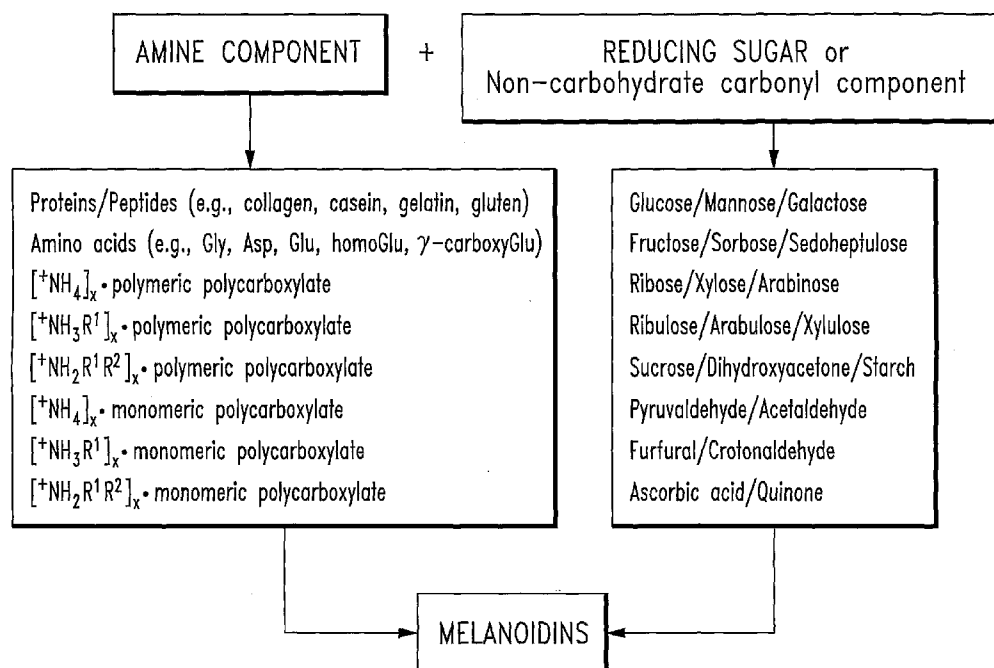
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

Published:

- with international search report

[Continued on next page]

(54) Title: BINDERS AND MATERIALS MADE THEREWITH



(57) Abstract: Binders to produce or promote cohesion in non or loosely assembled matter. The binders comprise maillard reactants including amine and carbohydrate; optionally a silicon containing compound and/or a corrosion inhibitor.



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12 April 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/028929

A. CLASSIFICATION OF SUBJECT MATTER

INV. C08L5/00 C08L3/00 C03C25/32

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C08L C03C

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)

EPO-Internal, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 911 361 A1 (NAT STARCH CHEM INVEST [US]) 28 April 1999 (1999-04-28) claim 6; table 4b	1-34
X	US 6 440 204 B1 (ROGOLS SAUL [US] ET AL) 27 August 2002 (2002-08-27) claim 6	1-34
X	EP 1 486 547 A2 (NAT STARCH CHEM INVEST [US]) 15 December 2004 (2004-12-15) claims 1,3,7	1-34
X	GB 2 078 805 A (TBA INDUSTRIAL PRODUCTS LTD) 13 January 1982 (1982-01-13) claims; example 2	1-34
	-/--	

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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

P 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 application but cited 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 obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

28 December 2006

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16/01/2007

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/028929

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 296 173 A (FAHEY DENNIS M) 20 October 1981 (1981-10-20) claim 1 -----	1-34
X	EP 1 193 288 A1 (NAT STARCH CHEM INVEST [US] CELANESE INT CORP [US]) 3 April 2002 (2002-04-03) claim 1 -----	1-34
X	US 5 582 682 A (FERRETTI ARTHUR [US]) 10 December 1996 (1996-12-10) claim 1 -----	1-34
X	EP 0 547 819 A2 (BRITISH AMERICAN TOBACCO CO [GB] BRITISH AMERICAN TOBACCO CO [JP]) 23 June 1993 (1993-06-23) column 4, lines 17-39 -----	1-34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/028929

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14, 29,30,

Binder comprising amine and carbohydrate, material comprising the binder

2. claims: 15-18, 23-25

Binder comprising one or more Maillard reaction products and a silicon containing compound, material comprising a silicon containing binder.

3. claims: 19-22, 26-28

Binder comprising one or more Maillard reaction products and a corrosion inhibitor, material comprising a corrosion inhibitor containing binder

4. claim: 31

Material comprising a binder comprising at least two Maillard reactants

5. claim: 32

Binder comprising amine, carbohydrate and silicon containing compound.

6. claim: 33

Binder comprising amine, carbohydrate and corrosion inhibitor.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/028929

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