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English

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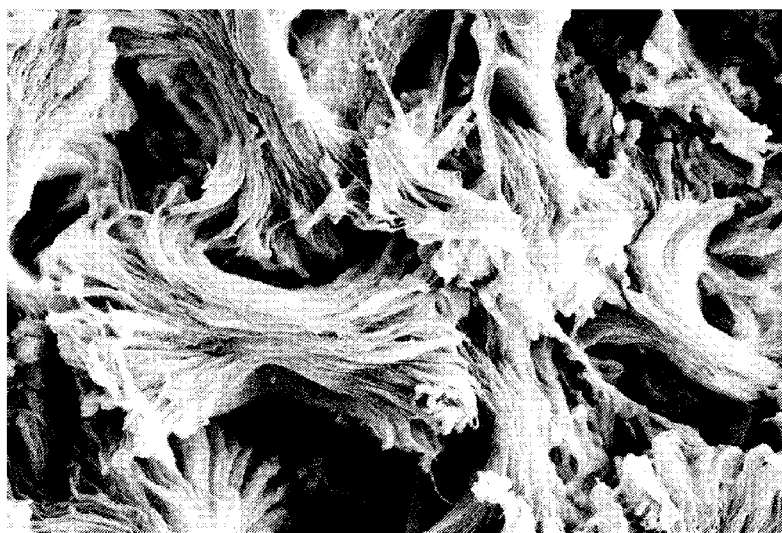
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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[Continued on next page]

(54) Title: METHODS AND SYSTEMS FOR SYNTHESIS OF AN ULTRA HIGH MOLECULAR WEIGHT POLYMER



Mag = 29.15 KX 2µm EHT = 5.00 KV Signal A = SE2 Date : 11 Feb 2010
WD = 9 mm Photo No. = 3532

(57) Abstract: A method for controlling the physical state of an ultra-high molecular weight polymer to make the ultra-high molecular weight polymer suitable for further processing, and related polymers compositions methods and systems, wherein the method comprises combining a catalyst, monomers, and an additive, for a time and under condition to allow synthesis of a nascent polymer and co-crystallization of the nascent polymer with the additive.

FIG. 8



SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))*

Published:

— *with international search report (Art. 21(3))*

(88) Date of publication of the international search report:

12 July 2012

A. CLASSIFICATION OF SUBJECT MATTER*C08F 2/00(2006.01)i, C08F 2/44(2006.01)i, C08F 10/02(2006.01)i, C08J 3/02(2006.01)i*

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)

C08F 2/00; C08L 31/00; B32B 27/14; G03G 5/00; C09B 67/00; C08F 10/02; C08F 4/24

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: ultra-high molecular weight polymer, colloidal stabilizer, catalyst, solvent

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 04965131 A (NAIR, MRIDULA et al.) 23 October 1990 See column 3 line 57-column 4 line 3, column 4 lines 37-57, column 5 lines 46-58, column 7 lines 7-55	1-6, 12, 13, 17, 18
A	US 2007-0149652 A1 (YOON, HICHANG et al.) 28 June 2007 See paragraph [0027], claim 1	1-6, 12, 13, 17, 18
A	WO 2010-060555 A1 (BASELL POLYOLEFINE GMBH et al.) 03 June 2010 See claims 1-3	1-6, 12, 13, 17, 18
A	US 05364904 A (FARMER, DAVID B. et al.) 15 November 1994 See claims 1-3, 5	1-6, 12, 13, 17, 18

 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 application or patent 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 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

"&" document member of the same patent family

Date of the actual completion of the international search

23 MAY 2012 (23.05.2012)

Date of mailing of the international search report

23 MAY 2012 (23.05.2012)

Name and mailing address of the ISA/KR

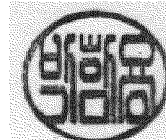
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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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.: 7,9,15,21,23,26,27
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:

Claim 7 does not describe the definition of group R of disclosed chemical formulae and claims 9, 15, 21, 23, 26 and 27 refer to claims which are not drafted in accordance with the second and third sentences of Rule 6.4(a).

3. Claims Nos.: 8,10,11,14,16,19,20,22,24,25,28
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. 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:

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 and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2011/056788

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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