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[Continued on next page]

(54) Title: A BLEND COMPOSITION, FLEXIBLE TUBING MATERIAL AND METHOD OF MAKING THE BLEND

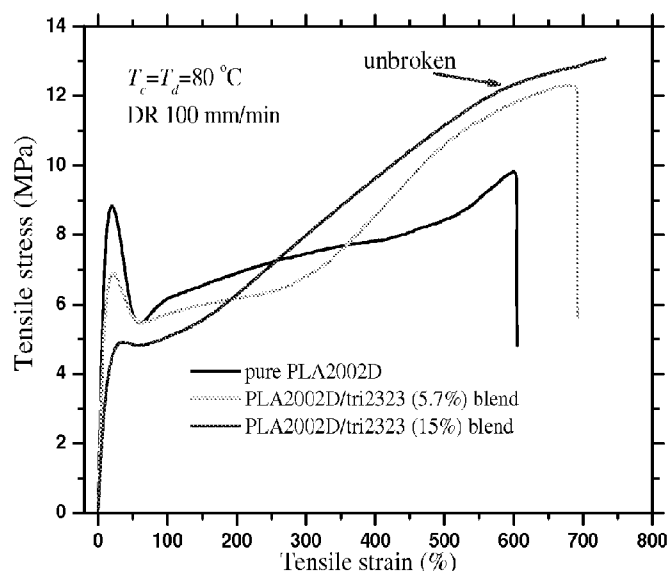


FIGURE 1

(57) Abstract: A composition includes a blend of (a) a multi-block copolymer including at least one block of an elastomeric polymer and at least one block of a first polymer including a chiral polymer having a stereo isomeric configuration; and (b) a second polymer including an anti-chiral polymer corresponding to the chiral polymer in (a), wherein the second polymer includes an opposite handed stereo isomeric configuration to the chiral polymer in (a); wherein the blend of the chiral polymer and the anti-chiral polymer form stereo complex sites. A flexible tubing material further includes the blend. In an embodiment, a method of making the blend material is also provided.



(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

A. CLASSIFICATION OF SUBJECT MATTER*C08L 101/00(2006.01)i, C08L 53/00(2006.01)i, C08L 67/04(2006.01)i, F16L 11/04(2006.01)i, C08J 3/20(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)

C08L 101/00; C08L 33/08; B29C 47/00; C08L 69/00; C08L 67/00; C08G 81/02

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: block copolymer, elastomer, chiral polymer, anti-chiral polymer, stereoisomer, poly(lactic acid), flexible, tubing.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	RATHI, SAHAS et al., "Toughening semicrystalline poly(lactic acid) by morphology alteration", Polymer 2011, Vol. 52, 4184-4188. (28 July 2011) See the whole document, especially abstract & Figures 1-2.	1-6, 17-22, 33-38
PX	WO 2011-129771 A1 (AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH) 20 October 2011 See abstract; paragraph [0023]; claims 1-13.	1-6, 17-22, 33-38
X	US 2009-0281249 A1 (THATCHER, G. LAWRENCE et al.) 12 November 2009 See paragraphs [0009]-[0010], [0049]-[0051] & [0057]; claims 1-5.	1-6, 17-22, 33-38
X	STEVENS, WILLEM M. et al., "Stereocomplex formation in ABA triblock copolymers of poly(lactide) (A) and poly(ethylene glycol) (B)", Macromol. Chem. Phys. 1995, Vol. 196, 3687-3694.	1-6
A	See the whole document, especially pages 3688, 3690 & 3692-3693.	17-22, 33-38
A	US 2010-0056700 A1 (CHUNG, YOUNG-MI et al.) 04 March 2010 See paragraphs [0049] & [0085]-[0086].	1-6, 17-22, 33-38



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

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"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

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/035068

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	LIM, DONG WOO et al., "A new class of biodegradable hydrogels stereocomplexed by enantiomeric oligo(lactide) side chains of poly(HEMA-g-OLA)s", Macromol. Rapid Commun. 2000, Vol. 21, 464-471. See Figure 1.	1-6, 17-22, 33-38

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US2012/035068**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.: 8,15,24,31,40,47
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:

The above claims refer to claim(s) which is/are not drafted in accordance with the second and/or third sentence of Rule 6.4(a).
Thus, no meaningful search could be carried out.
3. ☒ Claims Nos.: 7,9-14,16,23,25-30,32,39,41-46,48-49
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/US2012/035068

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Information on patent family members

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