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

Published:

- with international search report (Art. 21(3))
- 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))

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

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(54) Title: A FLEXIBLE ARTICLE AND METHOD OF FORMING THE ARTICLE

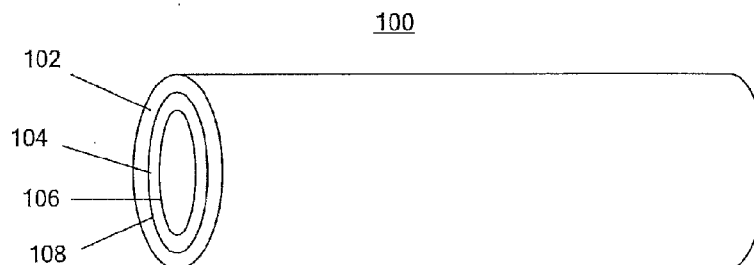


FIG. 1

(57) Abstract: A flexible article includes a layer of a thermoplastic polyurethane composition including a plasticizer present at up to about 50.0% by weight of the total weight of the composition. The thermoplastic polyurethane composition has a shore A durometer of not greater than about 80. A method of making a flexible article includes combining a thermoplastic polyurethane with a plasticizer to form a thermoplastic polyurethane composition, wherein the plasticizer is present at up to about 50.0% by weight of the total weight of the composition; and forming the thermoplastic polyurethane composition into the flexible article, wherein the flexible article has a shore A durometer of not greater than about 80.



A. CLASSIFICATION OF SUBJECT MATTER***F16L 11/04(2006.01)i, B32B 1/08(2006.01)i, C08J 5/00(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)

F16L 11/04; C08K 5/10; B32B 27/40; F01L 9/02; C08G 18/00; A47L 9/24

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: thermoplastic polyurethane, shore A, durometer, plasticizer, flexible article, polymeric material.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008-0085988 A1 (SRIDHAR K. SIDDHAMALLI) 10 April 2008 See abstract, paragraphs [0012]-[0016], [0033]-[0036] and claims 1, 8-10, 12, 14-16	1-3,23-25
X	US 2008-0000438 A1 (RONALD JAY PIERIK) 03 January 2008 See abstract, paragraphs [0001]-[0004], [0033]-[0035], [0040], [0053] and claims 1, 6, 12-14	1,2,24 3,23,25
A	US 2009-0176917 A1 (LüBKER GüNTER et al.) 09 July 2009 See abstract, paragraphs [0002], [0003], [0030], [0031], [0037], [0049], [0050] and claims 16, 20, 22, 27, 28	1-3,23-25
A	JP 2005-095668 A (TIGERS POLYMER CORP) 14 April 2005 See abstract, paragraphs [0005], [0014], [0015], claims 1-4 and figure 3	1-3,23-25



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

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Date of mailing of the international search report

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Name and mailing address of the ISA/KR

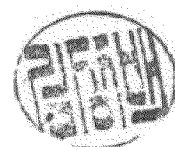
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/024152**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.: 8-10, 14-19, 22, 30-32, 37-45, 48
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:
Claims 8-10, 14-19, 22, 30-32, 37-45 and 48 are unclear because they refer to claims 7, 13, 21, 29, 36 and 47 respectively which do not comply with PCT Rule 6.4(a).
3. ☒ Claims Nos.: 4-7, 11-13, 20, 21, 26-29, 33-36, 46, 47
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/US2012/024152

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008-0085988 A1	10.04.2008	CN 101558097 A EP 2061823 A1 TW 200827379 A US 8034873 B2 WO 2008-045637 A1	14.10.2009 27.05.2009 01.07.2008 11.10.2011 17.04.2008
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