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Published:

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1 November 2012

(54) Title: MELT-BLENDED THERMOPLASTIC COMPOSITION

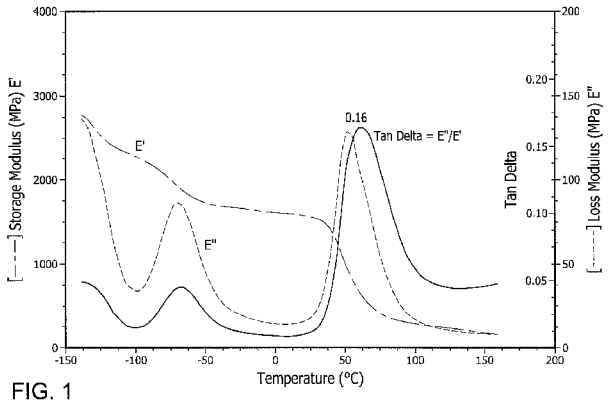

FIG. 1

(57) Abstract: Disclosed is a melt-blended thermoplastic composition including: A) a polyamide composition including a) 55 to 90 weight percent semi-crystalline semi-aromatic copolyamide; wherein the semi-aromatic copolyamide has a DMA tan delta peak value of greater than or equal to 0.23; and heat of fusion of at least 20 J/g and b) 10 to 45 weight percent aliphatic homopolyamide; wherein the aliphatic homopolyamide has a DMA tan delta peak value of less than or equal to 0.21; and heat of fusion of at least 30 J/g; B) 0 to 45 weight percent polymeric toughener; C) 0 to 20 weight percent plasticizer; and D) 0 to 45 weight percent reinforcing agent; wherein said melt-blend composition has a glass transition and has a tan delta peak (E"/E') value of 0.21 or lower at said glass transition. Further disclosed herein is a method for providing the melt-blended thermoplastic composition.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

C08L 77/00(2006.01)i, C08L 77/06(2006.01)i, C08L 77/10(2006.01)i, C08G 69/00(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 77/00; C08G 69/36; C08G 69/08; C08K 5/053; C08L 97/00

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: melt-blend, thermoplastic, composition, semi-aromatic, semi-crystalline, polyamide, automotive.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PA	US 2011-0144256 A1 (MATHEW, ANNA KUTTY et al.) 16 June 2011 See abstract; Tables 1-2.	1-3,7-10
A	US 2003-0023008 A1 (UCHIDA, KOICHI et al.) 30 January 2003 See abstract; claims 1-4.	1-3,7-10
A	US 2010-0233402 A1 (DOSHI, SHAILESH RATILAL et al.) 16 September 2010 See abstract; Table 1; claims 1-12.	1-3,7-10
A	US 2010-0249282 A1 (TOPOULOS, GEORGIOS) 30 September 2010 See claims 1-3.	1-3,7-10
A	US 2010-0029819 A1 (PALMER, ROBERT J. et al.) 04 February 2010 See claims 1-15.	1-3,7-10

☐ 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

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Information on patent family members

International application No.

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INTERNATIONAL SEARCH REPORT

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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.: 11-12
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 11-12 are directed to the melt-blended thermoplastic composition, referring to claims 7-8. However, claims 7-8 are method claims. Thus, claims 11-12 do not meet the requirement of PCT Article 6, because the subject matter for which protection is sought is not clear for claims 11-12.

3. ☒ Claims Nos.: 4-6
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 addtional 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.