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(54) Title: COMPOSITIONS FOR VIBRATION DAMPING

(57) Abstract: A vibration damping composition including (a) at least one saturated thermosettable component such as a polyurethane precursor, or an epoxy resin having one or more epoxy groups; (b) a crosslinking agent for the saturated thermosettable component; and (c) a thermoplastic interpolymers resin such as a α -olefin/vinyl aromatic interpolymers, for example an ethylene-styrene interpolymers (ESI); wherein the glass transition temperature of the cured saturated thermosettable component is between -20 °C and +100 °C; and the vibration damping composition provides efficient damping at 0-60 °C with a maximum damping factor >15 percent that is stable at 0-30 °C.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/48718

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C08L63/00 C08G59/22 C08G59/40

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)

IPC 7 C08L C08G

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 635 562 A (MALCOLM COLLIN C) 3 June 1997 (1997-06-03) column 5, line 10; claims 2,5,7	2-15,19, 22-37
Y	claims column 6, line 55	2-37
X	US 5 670 006 A (CLARK III HENRY B ET AL) 23 September 1997 (1997-09-23) column 4, line 27-33 column 6, line 1-50; claim 1 column 10, line 40-43	2-8,19, 22,26-37
X	US 6 030 701 A (JOHNSON MICHAEL A ET AL) 29 February 2000 (2000-02-29) column 7, line 10; figure 1A column 10, line 2,3; examples	2-8,19, 22-37
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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.

"&" document member of the same patent family

Date of the actual completion of the international search

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17.06.02

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/48718

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99 16840 A (DOW CHEMICAL CO ;ESSEX SPECIALTY PROD (US)) 8 April 1999 (1999-04-08) the whole document ---	2-37
Y	US 6 153 709 A (XIAO HONG ET AL) 28 November 2000 (2000-11-28) claims -----	2-37

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 01/48718

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: 1
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:
see FURTHER INFORMATION sheet PCT/ISA/210
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 II Observations where unity of invention is lacking (Continuation of item 2 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

Continuation of Box I.2

Claims Nos.: 1

Present claim 1 relates to a composition defined by reference to a desirable characteristic or property, namely the defined compounds (a) to (c) should be "sufficient to provide a composition having a loss factor..."

The claim covers all compositions having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such compositions. In the present case, the claim so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claim also lacks clarity (Article 6 PCT). An attempt is made to define the product by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the claims startinf from claim 2.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. Claims: 2-15,19,22-37

A vibration damping composition on the basis of an epoxy resin (a), a crosslinking agent (b) and a thermoplastic interpolymer (c).

2. Claims: 16-18,20-21

A vibration damping composition on the basis of a polyurethane precursor (a), a crosslinking agent (b) and a thermoplastic interpolymer (c).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/48718

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