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(54) Title: POLYCATIONIC VISCOELASTIC COMPOSITIONS

(57) Abstract: Viscoelastic compositions are disclosed herein containing an effective amount of one or more random or structurally defined polycationic quaternary ammonium compounds for controlling the viscoelasticity of the composition. In at least one aspect, the present technology provides polycationic quaternary ammonium compounds comprising dissymmetric bis-quaternary compounds. In another aspect, the present technology provides viscoelastic compositions comprising polycationic quaternary ammonium compounds that comprise dissymmetric bis-quaternary compounds. In yet another aspect, the present technology provides polycationic quaternary ammonium compounds comprising a carboxylate functional polycationic quaternary ammonium compound. Preferred viscoelastic compositions of the present technology maintain viscoelasticity at a temperature greater than about 80° C, preferably greater than about 100° C or about 110° C when the amount of the one or polycationic quaternary compounds is less than about 10% by weight based on the total weight of the composition.



WO 2007/056284 A3

# INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: C09K 8/62( 2006.01),8/66( 2006.01),8/80( 2006.01);C11D 1/62( 2006.01);A61K 31/14( 2006.01)

USPC: 507/240,242,922,924;166/270.1,271,308.2,308.2;424/70.1,70.28;514/642

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)

U.S. : 507/240,242,922,924; 166/270.1,271,308.2,308.2; 424/70.1,70.28; 514/642

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 practicable, search terms used)

USPT, USOC and PGPB West text search

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Us 4,734,277 A (LOGIN) 29 May 1988 (29.05.1988), abstract, columns 1-6, examples and claims.	1-33
X	US 2004/00067855 A (HUGHES et al.) 08 April 2004 (08.04.2004), abstract, figs. 11-16, sections [0063] and [0090]-[0094], examples and claims.	1-33
A	US 4,828,819 A (LAN et al.) 09 May 1989 (09.05.1989), abstract, examples and claims.	1-33
A	US 4,073,927 A (FREILICH) 14 February 1978 (14.02.1978), abstract, examples and claims.	1-33
A	US 5,196,135 A (MERIANOS) 23 May 1993 (23.05.1993), abstract, examples and claims.	1-33
A	US 4,612,188 A (ZORAYAN et al.) 16 September 1986 (16.09.1986), abstract, examples, and claims.	1-33

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"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
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