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(54) Title: TOOTH WHITENING DELIVERY SYSTEM

(57) Abstract: A tooth whitening delivery system including a single-dose applicator (10) and a liquid, substantially anhydrous tooth whitener composition of predetermined viscosity contained in said applicator (10) for delivery of a tooth-whitening amount of active whitening ingredient from said applicator onto teeth, with effective bioadhesion and retention thereof, and, thereupon, sufficient penetration of said ingredient through the tooth enamel providing efficacious bleaching of stained teeth, comprising, by weight, (a) 10 % to 75 % of a complex which is (i) a mixture of 78 to 90 % of water soluble polyvinylpyrrolidone (PVP) having K-values of K-12 to K-120 and (ii) 10 to 22 % of H<sub>2</sub>O<sub>2</sub>; releasing 1 to 20 % of active H<sub>2</sub>O<sub>2</sub> from said complex onto a tooth surface; (b) 0 to 20 % of PVP K-60 to K-90, said PVP being present in said composition at a K-value of the PVP in said complex of less than 30, and/or the amount of PVP therein is less than 20 %, and (c) 30 to 90 % of a substantially anhydrous solvent, said composition having a Brookfield viscosity of 75 to 300 cps, an in vitro bioadhesion/retention on hydroxyapatite (HAP) of at least 10 % after 5 minutes while immersed in water, and a bleaching efficacy defined by  $\Delta E$  values of at least 5 in the CIE (L\*a\*b\*) color scale.



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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/03007

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC: <b>A61K 8/22</b> ( 2006.01)  USPC: 424/53 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 424/53  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) Please See Continuation Sheet		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	US 2006/0292091 A1 (PROSISE) 28 December 2006 (28.12.2006), see the entire document.	1-19
Y	US 2006/0018845 A1 (EDELSTEIN et al.) 26 January 2006 (26.01.2006), see the entire document, especially Tables 2 and 3.	1-19
Y	US 2004/0219111 A1 (KIM et al.) 4 November 2004 (04.11.2004), see paragraphs 46 and 47, page 5, especially paragraph 55, page 7.	1-19
A	US 5,077,047 (BISS et al.) 31 December 1991 (31.12.1991), see the entire document.	1-19
A	US 5,098,297 (CHARI et al.) 24 March 1992 (24.03.1992), see the entire document.	1-19
A	US 2004/ 00846468 A1 (PROSISE et al.) 6 May 2004 (06.05.2004), see the entire document, especially claim 7.	1-19
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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	"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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"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer Maury Audet <i>Felicia D. Robert</i> Telephone No. 571-272-1600 <i>for</i>

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Continuation of B. FIELDS SEARCHED Item 3:

EAST, STNEasy,

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