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(54) **Title:** ADDITIVE PACKAGE FOR THERMOPLASTIC CONDENSATION POLYMERS

(57) **Abstract:** The invention is directed to a thermoplastic condensation polymer chain extender additive package for reducing the molecular weight loss of a thermoplastic condensation polymer during a heated process comprising a chain extender composition selected from the group consisting of (a) a mixture of a chain extending agent and a water-bearing particulate material (b) a water-bearing particulate material surface treated with a chain extending agent or (c) a combination of (a) and (b). The water-bearing particulate material can be titanium dioxide pigment, the chain extending agent can be a multifunctional epoxy compound and the condensation polymer can be polyethylene terephthalate, polybutylene terephthalate or polycarbonate.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/38012

A. CLASSIFICATION OF SUBJECT MATTER IPC: C08K 9/00(2006.01);C08F 6/00(2006.01);C08J 3/00(2006.01) USPC: 523/205;528/485,490 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. : 523/205;528/485,490 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) US PAT, US PGPUB, USOCR, DERWENT, EPO, JPO																									
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 10%;">Category *</th> <th style="width: 60%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width: 30%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">X</td> <td>US 4,246,378 (KOMETANI et al) 20 Jan 1981 (20.01.1981), col 1, 2, 4, 5, and claims 1-10.</td> <td style="text-align: center;">1,2,4,7-9,11,12,14,17-19,21,23</td> </tr> <tr> <td style="text-align: center;">X</td> <td>EP 1153966 (FUJIMAKI et al) 14 Nov 2001 (14.11.2001), paragraphs 1,12,20-22,52,55-57,75.</td> <td style="text-align: center;">1,4,7,8,10,11,14,17,18,20,21,26</td> </tr> <tr> <td style="text-align: center;">X</td> <td>US 4,336,343 (AHARONI) 22 June 1982 (22.06.1982), col 1,6-8, claims 1,4,10,17.</td> <td style="text-align: center;">1,3,8,11,13,18,21</td> </tr> <tr> <td style="text-align: center;">Y</td> <td>US 2004/0138381 (BLASIUS et al) 15 July 2004 (15.07.2001), para 20-21,45, 47, 60-61,120.</td> <td style="text-align: center;">1,8-11,18-21,23-26</td> </tr> <tr> <td style="text-align: center;">Y</td> <td>US 5,607,994 (TOOLEY et al) 4 March 1997 (04.03.1997), col 1,3,4.</td> <td style="text-align: center;">2,4-6,12,14-16</td> </tr> <tr> <td style="text-align: center;">Y</td> <td>WO 97/07879 (SCHURR) 21 Aug 1996 (21.08.1996), abstract; pg 1-3.</td> <td style="text-align: center;">22</td> </tr> <tr> <td style="text-align: center;">A</td> <td>US 4,857,603 (AKKAPEDDI et al) 15 Aug 1989 (15.08.1989), whole document.</td> <td style="text-align: center;">1,11</td> </tr> </tbody> </table>		Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 4,246,378 (KOMETANI et al) 20 Jan 1981 (20.01.1981), col 1, 2, 4, 5, and claims 1-10.	1,2,4,7-9,11,12,14,17-19,21,23	X	EP 1153966 (FUJIMAKI et al) 14 Nov 2001 (14.11.2001), paragraphs 1,12,20-22,52,55-57,75.	1,4,7,8,10,11,14,17,18,20,21,26	X	US 4,336,343 (AHARONI) 22 June 1982 (22.06.1982), col 1,6-8, claims 1,4,10,17.	1,3,8,11,13,18,21	Y	US 2004/0138381 (BLASIUS et al) 15 July 2004 (15.07.2001), para 20-21,45, 47, 60-61,120.	1,8-11,18-21,23-26	Y	US 5,607,994 (TOOLEY et al) 4 March 1997 (04.03.1997), col 1,3,4.	2,4-6,12,14-16	Y	WO 97/07879 (SCHURR) 21 Aug 1996 (21.08.1996), abstract; pg 1-3.	22	A	US 4,857,603 (AKKAPEDDI et al) 15 Aug 1989 (15.08.1989), whole document.	1,11
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.																									
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> * 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 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 </td> <td style="width: 50%; vertical-align: top;"> "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 </td> </tr> </table>		* 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 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																						
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Date of the actual completion of the international search 02 April 2006 (02.04.2006)	Date of mailing of the international search report 02 MAY 2006																								
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 Sandra K. Poulos Telephone No. 571-272-1700																								

INTERNATIONAL SEARCH REPORT

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 4,499,219 (BUXBAUM et al) 12 Feb 1985 (12.02.1985), whole document.	1,8,11,18
A	US 5,049,603 (MOCHIZUKI) 17 Sep 1991 (17.09.1991), whole document.	1,8,11,18
A	US 5,331,065 (PO et al) 19 July 1994 (19.07.1994), whole document.	1,8,11,18
A	US 5,807,932 (PFAENDER et al) 15 Sep 1998 (15.09.1998), whole document.	1,11
A	US 2002/0177663 (CAHILL) 28 Nov 2002 (28.11.2002), paragraph 18.	1,8,11,18
A	US 2004/0164437 (MORTON-FINGER) 26 Aug 2004 (26.08.2004), paragraph 19.	1,11