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(54) Title: FLAME RESISTANCE NATURAL FIBER-FILLED THERMOPLASTICS WITH IMPROVED PROPERTIES

(57) Abstract: The invention relates to flame retardant systems including the brominated flame retardants and chlorinated flame retardants with synergists and char formers for use in wood-filled resins in combination with compatibilizers to enhance physical properties and to increase water extraction resistance and long term durability. Desirable embodiments of the invention relate to brominated and chlorinated flame retardant additives, synergists, and char formers for use in resins, including polyolefins, fillers, wood-filled polyolefins, in combination with compatibilizers and methods of use of the flame retardants and fillers. The invention includes methods of making and using the composition.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 759 851 A (CARL W ET AL) 18 September 1973 (1973-09-18) claims; examples	1-13
Y	US 2006/091578 A1 (BRAVO JUAN M [US] ET AL) 4 May 2006 (2006-05-04) claims; examples	1-13
Y	US 5 116 898 A (SCHLEIFSTEIN ROBERT A [US]) 26 May 1992 (1992-05-26) examples	1-13

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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- *&* document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3759851	A	18-09-1973	AT 297656 B 10-04-1972
		BE 737115 A 16-01-1970	
		CH 512628 A 28-05-1971	
		CH 1080569 D 28-05-1971	
		DE 1769913 A1 15-07-1971	
		FR 2015100 A1 24-04-1970	
		GB 1274925 A 17-05-1972	
		NL 6911862 A 09-02-1970	
		SE 351245 B 20-11-1972	
US 2006091578	A1	04-05-2006	US 2007138689 A1 21-06-2007
			WO 2006049658 A2 11-05-2006
US 5116898	A	26-05-1992	NONE