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(54) Title: WASHABLE CARPET PRODUCTS WITH COATING LAYERS FORMED FROM VINYL ESTER/ETHYLENE COPOLYMER DISPERSIONS

(57) Abstract: Disclosed are carpet products comprising at least one flexible substrate and at least one coating layer associated with the at least one flexible substrate. The coating layer is formed from an aqueous composition comprising: A) an emulsifier-stabilized vinyl acetate/ethylene (VAE) emulsion copolymer dispersion wherein the VAE copolymer therein comprises comonomers which include at least vinyl acetate copolymerized with ethylene and optionally also with other additional functional and/or non-functional co-monomers; and B) at least one particulate filler material selected from particulate inorganic compounds and particulate plastic material. The vinyl acetate/ethylene copolymer in the copolymer dispersion has a particle size, d_w , ranging from about 50 to about 500 nm as determined by Laser Aerosol Spectroscopy. Such carpet products maintain their integrity and appearance after multiple machine washing operations. Some of these carpet products which have backing coated with certain of the coating compositions used herein also exhibit desirable non-slip properties.



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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06N C09D C09J

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	EP 0 864 685 A2 (NAT STARCH CHEM INVEST [US] CELANESE INT CORP [US]) 16 September 1998 (1998-09-16)	1-12, 15-38
Y	page 2, lines 28-31; claims	13,14
A	page 2, line 53 - page 6, line 30 page 7, lines 10-40	39-49
X	----- US 2005/287336 A1 (LUNSFORD DAVID J [US] ET AL) 29 December 2005 (2005-12-29) paragraphs [0007] - [0026], [0039], [0040], [0045] - [0048]; claims; examples	1-49
X	----- EP 1 008 689 A2 (NAT STARCH CHEM INVEST [US] CELANESE INT CORP [US]) 14 June 2000 (2000-06-14)	1-38
A	paragraphs [0009], [0010], [0012], [0016] - [0029], [0033]; claims; examples	39-49
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Further documents are listed in the continuation of Box C.



See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/054614 A1 (DOW GLOBAL TECHNOLOGIES INC [US]; COWART JOHN E [US]; BERGMAN ROGER W) 8 May 2008 (2008-05-08)	1-38
A	page 12, lines 5-15; example 3 page 16, lines 11-20	39-49
X	EP 0 263 267 A2 (NAT STARCH CHEM CORP [US]) 13 April 1988 (1988-04-13)	1-38
A	page 2, lines 13-23; claims 1-6; examples page 5, line 15 - page 8, line 2	39-49
X	EP 0 432 391 A2 (NAT STARCH CHEM INVEST [US]) 19 June 1991 (1991-06-19)	1-38
A	page 2, lines 24-42; claims; examples; table I page 3, lines 24-41 page 4, lines 13-31 page 5, lines 10-29	39-49
X	GB 1 408 894 A (AIR PROD & CHEM) 8 October 1975 (1975-10-08)	1-39
A	page 2, lines 69-75,100-105; claims; examples page 3, lines 19-94 page 4, lines 51-54	40-49
X	US 4 735 986 A (IACOVIELLO JOHN G [US]) 5 April 1988 (1988-04-05)	1-39
A	column 3, lines 17-20,35-54; claims 1,3,4,9; examples column 4, lines 3-14 column 7, lines 11-57	40-49
Y	EP 2 088 162 A1 (CELANESE EMULSIONS GMBH [DE]) 12 August 2009 (2009-08-12)	13,14
A	paragraphs [0068] - [0076], [0085] - [0088], [0094]; claims 1,7-10; examples 1-8	1-12, 15-49
X,P	WO 2010/089142 A1 (CELANESE EMULSIONS GMBH [DE]; MUELLER HARMIN [DE]; WORMALD PAUL STUART) 12 August 2010 (2010-08-12)	1-49
	page 5, line 29 - page 14, line 16; claims; examples	
E	WO 2011/140065 A2 (CELANESE INT CORP [US]; LUNSFORD DAVID J [US]; FARWAHA RAJEEV [US]; SC) 10 November 2011 (2011-11-10)	1-49
	the whole document	
E	WO 2011/139267 A1 (CELANESE INT CORP [US]; LUNSFORD DAVID J [US]; FARWAHA RAJEEV [US]; SC) 10 November 2011 (2011-11-10)	1-49
	the whole document	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/002652

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0864685	A2	16-09-1998	AU 724898 B2 05-10-2000
			AU 5641498 A 10-09-1998
			DE 69837058 T2 31-10-2007
			EP 0864685 A2 16-09-1998
			NO 980985 A 11-09-1998
			US 5849389 A 15-12-1998
US 2005287336	A1	29-12-2005	AU 2005262773 A1 19-01-2006
			CN 1977010 A 06-06-2007
			EP 1761611 A1 14-03-2007
			US 2005287336 A1 29-12-2005
			WO 2006007157 A1 19-01-2006
EP 1008689	A2	14-06-2000	AU 768897 B2 08-01-2004
			AU 6318199 A 15-06-2000
			CA 2292030 A1 09-06-2000
			DE 69925351 D1 23-06-2005
			DE 69925351 T2 12-01-2006
			EP 1008689 A2 14-06-2000
			US 6359076 B1 19-03-2002
WO 2008054614	A1	08-05-2008	CN 101528790 A 09-09-2009
			EP 2079769 A1 22-07-2009
			US 2010098901 A1 22-04-2010
			WO 2008054614 A1 08-05-2008
EP 0263267	A2	13-04-1988	CA 1296959 C 10-03-1992
			DE 3761829 D1 12-04-1990
			EP 0263267 A2 13-04-1988
			MX 160108 A 30-11-1989
			US 4740394 A 26-04-1988
EP 0432391	A2	19-06-1991	CA 2026044 A1 16-06-1991
			DE 69015596 D1 09-02-1995
			DE 69015596 T2 11-05-1995
			EP 0432391 A2 19-06-1991
			JP 1969589 C 18-09-1995
			JP 3193978 A 23-08-1991
			JP 6102872 B 14-12-1994
			US 5026765 A 25-06-1991
GB 1408894	A	08-10-1975	AU 462437 B2 26-06-1975
			AU 4638072 A 14-03-1974
			BE 788763 A1 02-01-1973
			CA 1001539 A1 14-12-1976
			CH 545326 A 15-12-1973
			DE 2244775 A1 10-05-1973
			FR 2159876 A5 22-06-1973
			GB 1408894 A 08-10-1975
			IT 965340 B 31-01-1974
			JP 1088677 C 23-03-1982
			JP 48056992 A 10-08-1973
			JP 56033434 B 04-08-1981
			LU 66084 A1 17-01-1973
			NL 7212500 A 04-05-1973
US 4735986	A	05-04-1988	NONE

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/002652

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2088162	A1	12-08-2009	AT 521642 T 15-09-2011
			CN 101503485 A 12-08-2009
			DE 102008008421 A1 13-08-2009
			EP 2088162 A1 12-08-2009
			ES 2369391 T3 30-11-2011
			KR 20090086485 A 13-08-2009
			TW 200948828 A 01-12-2009
			US 2009203832 A1 13-08-2009

WO 2010089142	A1	12-08-2010	CA 2751821 A1 12-08-2010
			CN 102307911 A 04-01-2012
			DE 102009008143 A1 19-08-2010
			EP 2393847 A1 14-12-2011
			KR 20110120930 A 04-11-2011
			US 2012009379 A1 12-01-2012
			WO 2010089142 A1 12-08-2010

WO 2011140065	A2	10-11-2011	WO 2011139267 A1 10-11-2011
			WO 2011140065 A2 10-11-2011

WO 2011139267	A1	10-11-2011	WO 2011139267 A1 10-11-2011
			WO 2011140065 A2 10-11-2011
