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(54) Title: AQUEOUS DISPERSION OF HYBRID PARTICLES CONSISTING OF ORGANIC OR INORGANIC PIGMENT PARTICLES AND ORGANIC NANO-PARTICLES AND PROCESS FOR PREPARING THE SAME

(57) Abstract: An aqueous dispersion of hybrid particles consisting of inorganic or organic pigment particles and organic nano-particles attached to the surface of the pigment particles, the nano-particles having a particle size between 2 and 200 nanometers. Preferably the nano-particles have a glass transition temperature of at least 120 °C and comprise co-polymers of vinyl monomers and a mixture comprising maleic anhydride and derivates of maleic anhydride. In a process for preparing such an aqueous dispersion a copolymer of vinyl monomers and maleic anhydride is treated in water with a compound having the general formula R-N H_2 of which R is H, alkyl with 1 to 18 C-atoms or aryl, and in the presence of one or more inorganic pigment particles, at least 35 % of the maleic anhydride groups being transformed in imides groups.

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. C08J3/205 C08F8/32 C08J3/05

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)
C08J C08F

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.
A	JP 55 038839 A (PENTEL KK) 18 March 1980 (1980-03-18) abstract	1
A	WO 2004/031249 A1 (RAISIO CHEMICALS LTD [FI]; ABBEELE VAN DEN HENK JAN FRANS [BE]; FRIEDE) 15 April 2004 (2004-04-15) cited in the application claims 1,7,8,16,17 page 9, line 29 - line 32	1,8
A	WO 03/006511 A2 (ATOFINA [FR]; DUMOUSSEAUX CHRISTOPHE [FR]; DUQUE BAUDOUIN [BE]; PAULY) 23 January 2003 (2003-01-23) claim 1	1

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

☒ See patent family annex.

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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
JP 55038839 A	18-03-1980	JP 1397308 C	24-08-1987
		JP 62001983 B	17-01-1987
WO 2004031249 A1	15-04-2004	AU 2003268970 A1	23-04-2004
		CA 2500122 A1	15-04-2004
		JP 2006502302 T	19-01-2006
		US 2006009573 A1	12-01-2006
WO 03006511 A2	23-01-2003	EP 1409556 A2	21-04-2004
		FR 2827293 A1	17-01-2003