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(54) Title: SURFACE MODIFICATION OF NANOPARTICLES BY PHOSPHORUS-CONTAINING COMPOUNDS IN THE VAPOR PHASE

(57) Abstract: The present invention relates to a process for modifying the surface of nanoparticles, comprising providing nanoparticles, activating the surface of said nanoparticles by treatment with energetic species, and treating said nanoparticles with at least one gaseous phosphorus-containing compound having at least one functional group selected from a phosphoric acid group, a phosphonic acid group, a phosphinic acid group, a phosphinous acid group, salts thereof and derivatives thereof, a phosphine group and derivatives thereof, a phosphine oxide group and derivatives thereof, a phosphite group and a phosphonium group, resulting in chemical grafting of said phosphorus-containing compound on the surface of the nanoparticles. The invention also relates to a method of preparation of a stabilized dispersion of nanoparticles using the above prepared nanoparticles.



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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)
C09C

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, PAJ, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	"Modification of Mica Surface" WORLD SURFACE COATINGS ABSTRACTS, (PAINT RESEARCH ASS.) PERGAMON PRESS LTD. OXFORD, GB, vol. 69, no. 646, 1 April 1996 (1996-04-01), page 587, XP000582570 ISSN: 0043-9088 abstract	1-15
A	& JP 05 246776 A (JAPAN RES DEV CORP; OKUSA HIROSHI) 24 September 1993 (1993-09-24) ----- -/--	1-15

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

☒ See patent family annex.

* Special categories of cited documents :

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 "E" earlier document but published on or after the international filing date
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 "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.
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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.
A	CHANEAC C ET AL: "Hybrid composite materials containing magnetic iron oxide nanoparticles" MATERIALS RESEARCH SOCIETY SYMPOSIUM PROCEEDINGS, MATERIALS RESEARCH SOCIETY, PITTSBURG, PA, US, vol. 628, 2000, pages CC641-CC646, XP008088032 ISSN: 0272-9172 cited in the application the whole document	1-15
A	WO 03/016217 A (ESSILOR INT [FR]; DE LEUZE-JALLOULI AGNES M [US]; FOURNAND GERALD [US]) 27 February 2003 (2003-02-27) cited in the application page 3, line 15 - line 32; claims 1-8 page 5, line 10 - page 5, line 25	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/EP2007/058146

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 5246776	A	24-09-1993	NONE	
WO 03016217	A	27-02-2003	EP 1425245 A1	09-06-2004
			JP 2005500436 T	06-01-2005