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(21) International Application Number: PCT/US89/04130 (22) International Filing Date: 21 September 1989 (21.09.89) (30) Priority data: 248,852 22 September 1988 (22.09.88) US 396,402 14 August 1989 (14.08.89) US (71) Applicant: PPG INDUSTRIES, INC. [US/US]; One PPG Place, Pittsburgh, PA 15272 (US). (72) Inventors: CRAWFORD, Roger, A. ; 199 Highpoint Drive, Wadsworth, OH 44281 (US). KRIVAK, Thomas, G. ; 2222 Hi Vue Drive, Akron, OH 44312 (US). MALLOY, Patrick, G. ; North 7943, State Park Road, Menasha, WI 54952 (US). YANG, Da-Hung ; 7944 Winterberry Drive, Hudson, OH 44236 (US).	(74) Agents: STEIN, Irwin, M.; PPG Industries, Inc., One PPG Place, Pittsburgh, PA 15272 (US) et al. (81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent), FI, FR (European patent), GB (European patent), IT (European patent), JP, KR, LU (European patent), NL (European patent), SE (European patent). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 19 April 1990 (19.04.90)	
(54) Title: HIGH SOLIDS AQUEOUS SILICA SLURRY		
(57) Abstract Described are high solids aqueous slurries of amorphous precipitated hydrated silica, which slurries are of relatively low viscosity. The slurry typically contains from about 40 to about 60 weight percent of hydrated precipitated high structure silica. The viscosity of the high solids slurry is less than about 1000 centipoises. Processes for producing the aqueous high solids silica slurry are disclosed. In one embodiment, a wet cake of amorphous precipitated hydrated silica is liquified and the liquified wet cake charged to a high-intensity mill wherein the silica is wet milled until the median agglomerate particle size of the silica is between about 0.3 and about 3 microns. In a further embodiment, finely-divided dry amorphous precipitated silica is slurried in a dispersion mill to the desired solids level and this slurry charged to a high-intensity mill and wet milled therein until the aforesaid agglomerate particle size range is attained. The resulting high solids slurry can be shipped in bulk with only mild agitation to prevent settling. A dispersant may also be added to the slurry prior to milling to retard settling of the silica.		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 89/04130

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 C01B33/141 ; C09C1/30		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	C01B ; D21H ; C09C	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	DE,A,1467437 (DEGUSSA) 19 December 1968 see claims 1, 4 ---	1, 6, 7
A	PATENT ABSTRACTS OF JAPAN vol. 10, no. 335 (C-384)(2391) 13 November 1986, & JP-A-61 141767 (OJI PAPER) 28 June 1986, see the whole document ---	1, 6, 7, 12, 21, 24
A	ABSTRACT BULLETIN OF THE INSTITUTE OF PAPER CHEMISTRY. vol. 52, no. 6, December 1981, APPLETON US H. Funae et al.: "Preparation of paper coating composite" & JP-A-56067371 (MITSUBISHI SEISHI) see the whole document ---	1, 8-10, 16, 19, 30, 31
A	US,A,4238322 (BRANDT) 09 December 1980 see column 3, lines 34 - 43; claim 1 ---	1, 5
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<p>⁹ Special categories of cited documents: ¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"I" 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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	08 MARCH 1990	Date of Mailing of this International Search Report
		28. 03. 90
International Searching Authority	EUROPEAN PATENT OFFICE	Signature of Authorized Officer
		ZALM W.E. 

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III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	DE, A, 2721053 (DEGUSSA) 23 November 1978; example 1 ---	
A	GB, A, 2015490 (BLUE CIRCLE IND.) 12 September 1979 ---	

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

PCT/US 89/04130
SA 31561

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-1467437	19-12-68	US-A- 3472459	14-10-69
US-A-4238322	09-12-80	None	
DE-A-2721053	23-11-78	None	
GB-A-2015490	12-09-79	None	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82