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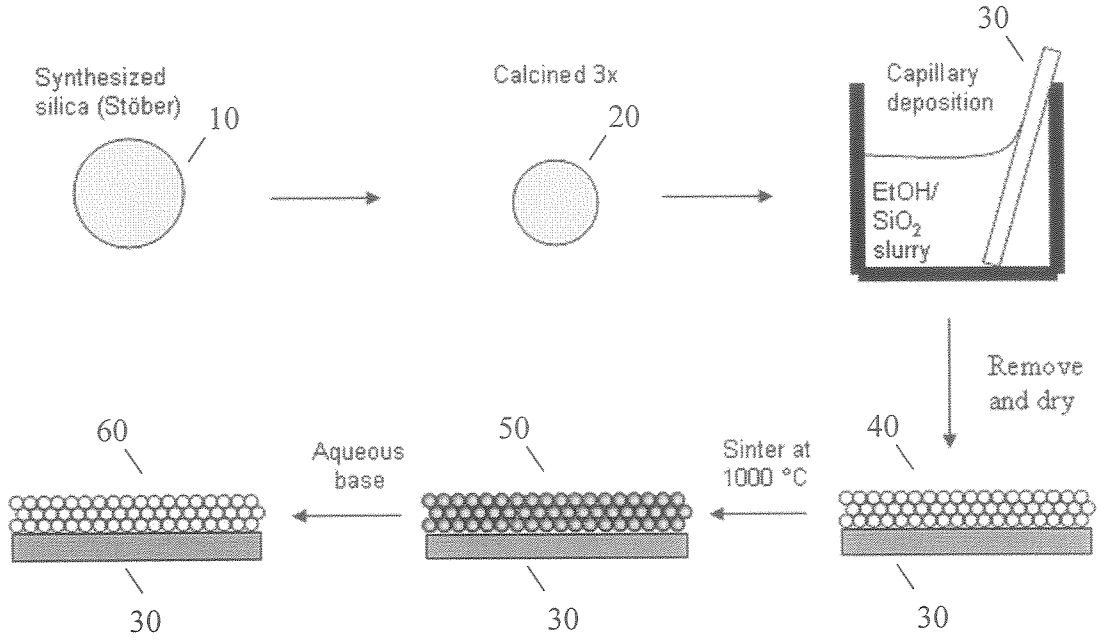
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(54) Title: HARDENING OF ORDERED FILMS OF SILICA COLLOIDS



(57) Abstract: Sintering self-assemblies of calcined colloidal silica particles results in sintered colloidal crystals that are free of cracks that can be resolved using optical microscopy. The sintered colloidal crystals have significantly improved strength and durability, and withstand aggressive handling. Surface rehydroxylation of the sintered colloidal crystals enables subsequent chemical modification.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US07/67632

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **B32B 9/04**(2006.01),**13/04**(2006.01)

USPC: 428/446
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)
U.S. : 428/446

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Corresponding US case 11/741327

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
East

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	Chabanov et al. "Avoiding Cracks in self assembled photonic band-gap crystals". APPLIED PHYSICS LETTERS, vol. 84, num. 18, PP. 3573-3575. (2004)	1-3,5,7-9 --- 4,6,10-20
Y	US 4,419,115 (JOHNSON et al.) 06 DECEMBER 1983 (06.12.1983) col. 4, lines 10-50).	1-20
Y	Mihi et al. "Orientated Colloidal Crystal Thin films by Spin-Coating Microspheres Dispersed in Volatile Media". Advanced Materials. 2006. 18, pp. 2244-2249.	1-20
Y	Mayoral et al., "3D long Range Ordering in an SiO2 Submicrometer sphere Sintered Super Structure" Advanced Materials, 1997, 9, No. 3, pp 257-260.	1-20

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Callie Shosho Telephone No. 571-272-4811

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