

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 July 2004 (01.07.2004)

PCT

(10) International Publication Number
WO 2004/054625 A3

- (51) International Patent Classification⁷: **B32B 3/26**, C01D 39/00, B01D 24/00
- (21) International Application Number: PCT/US2003/039427
- (22) International Filing Date: 11 December 2003 (11.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/432,910 12 December 2002 (12.12.2002) US
60/455,993 19 March 2003 (19.03.2003) US
60/475,729 4 June 2003 (04.06.2003) US
- (63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US Not furnished (CIP)
Filed on 12 December 2003 (12.12.2003)
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- (81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 31 March 2005
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: POROUS SINTERED COMPOSITE MATERIALS

(57) **Abstract:** The present invention is directed to porous composite materials comprised of a porous base material and a powdered nanoparticle material. The porous base material has the powdered nanoparticle material penetrating a portion of the porous base material; the powdered nanoparticle material within the porous base material may be sintered or interbonded by interfusion to form a porous sintered nanoparticle material within the pores and or on the surfaces of the porous base material. Preferably this porous composite material comprises nanometer sized pores throughout the sintered nanoparticle material. The present invention is also directed to methods of making such composite materials and using them for high surface area catalysts, sensors, in packed bed contaminant removal devices, and as contamination removal membranes for fluids.



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