(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 17 March 2005 (17.03.2005)

(10) International Publication Number WO 2005/023390 A3

(51) International Patent Classification: B01D 37/02 (2006.01)

(21) International Application Number:

PCT/US2004/013070

(22) International Filing Date: 28 April 2004 (28.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/466,160 28 April 2003 (28.04.2003) 60/542,409 5 February 2004 (05.02.2004)

(71) Applicant (for all designated States except US): INNOVA-TIVE CONSTRUCTION AND BUILDING MATERI-ALS [US/US]; 5764 Shellmound Street, Emeryville, CA 94608 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SOANE, David, S. [US/US]; 109 King Avenue, Piedmont, CA 94610 (US). TAGGE, Christopher, D. [US/US]; 731 Chestnut Street #109, San Carlos, CA 94070 (US).

(74) Agents: PARADIES, Christopher et al.; Fowler White Boggs Banker P.A., 501 E. Kennedy Blvd., Suite 1900, Tampa, FL 33602 (US).

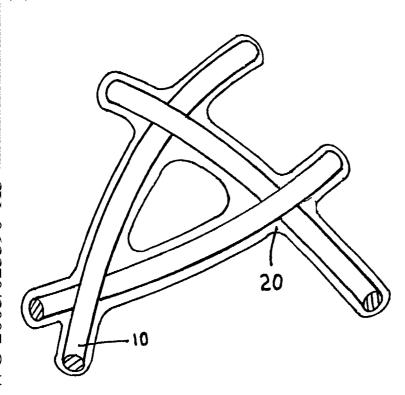
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (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
- (88) Date of publication of the international search report: 26 January 2006

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: ADVANCED FILTRATION DEVICES AND METHODS



(57) Abstract: A filter media comprises a medium for capturing and neutralizing harmful substances. Methods for fabricating a low-pressure, high efficiency filter media for capturing harmful substances produce filter media having engineered pores that have an engineered pour size dispersion, which may be monodispersed and uniformly arranged. Neutralizing components may be coated on filter media, providing both increased capture efficiency and neutralization of at least one harmful substance, such as harmful pathogens, aerosols, particulates, VOCs, gases and vapors.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/13070

				 · _ · _ · _ · _ · _ · _ · _ · _ · 	
A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : B01D 37/02					
US CL : 96/226, 227; 95/285; 55/524, Dig. 25, 385.2; 422/120; 427/244, 372.2; 442/123					
According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED					
	·	1 10 11	1 -1->	"	
Minimum documentation searched (classification system followed by classification symbols) U.S.: 96/226, 227; 95/285; 55/524, Dig. 25, 385.2; 422/120; 427/244, 372.2; 442/123					
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 practicable, search terms used)					
C. DOCUMENTS CONSIDERED TO BE RELEVANT					
Category *	Citation of document, with indication, where appropriate, of the relevant passages			Relevant to claim No.	
Υ, Ρ	US 6,673,136 B2 (GILLINGHAM et al) 06 January 2004, col. 4, line 61 through col. 5, line 1-11 and 16-20 16, col. 10, line 48 through col. 11, line 1-, col. 27, lines 45-62.				
Y	US 4,608,173 A (WATANABE et al) 26 August 1986, col. 1, lines 33-56, col. 2, lines 14-43.			12-15	
Y	US 4,374,814 A (GAYLORD) 22 February 1983, col. 3, lines 15-45, col. 4, lines 47-57, col. 5, lines 35-39 and lines 52-61, col. 6, lines 5-37 and lines 52-57, claims 16-19.			12-15	
	documents are listed in the continuation of Box C.		e patent family annex.		
* Special categories of cited documents:		an	and not in conflict with the application but cited to understand the		
"A" document particular	defining the general state of the art which is not considered to be of relevance	•	inciple or theory underlying the inve		
"E" earlier app	plication or patent published on or after the international filing date	co	ocument of particular relevance; the onsidered novel or cannot be conside then the document is taken alone		
establish t	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)		nsidered to involve an inventive ste	ticular relevance; the claimed invention cannot be volve an inventive step when the document is combined e other such documents, such combination being obvious ed in the art	
"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		"&" document member of the same patent family			
Date of the actual completion of the international search		Date of mailing of the international search report			
04 November 2005 (04.11.2005)		18 NOV 2005			
Name and m	ailing address of the ISA/US	Authorized officer			
	il Stop PCT, Attn: ISA/US mmissioner for Patents	Minh-Chau T. Pham			
P.O	. Box 1450	Telephone No. (703) 308-0661			
Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201			15. (105) 500 0001	VI VI ,	

Facsimile No. (571) 273-3201
Form PCT/ISA/210 (second sheet) (April 2005)