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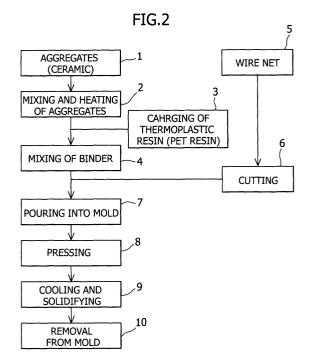
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(54) Ceramic sound absorbing material and manufacturing method therefor

An object of the present invention is to reuse (57)wastes of used or defective sound absorbing material body as a raw material for sound absorbing material body. As aggregates for the sound absorbing material of the present invention, ground mullite particles with an average particle size of about 0.5 to 1 mm are used. As a binder, polyethylene terephthalate (hereinafter referred to as PET) resin, which is a thermoplastic resin, of a form of pellet not larger than 1 mm is used. The aggregates are heated to a temperature in the range of 245°C to 290°C, which is the melting point of PET resin. In order to ensure the smoothness of surface layer when a mixture is poured into a mold, pressing with a pressure of 40 to 1000 kgf/cm² is performed. After pressing, the product is cooled and solidified, and then is removed from the mold, whereby a sound absorbing board with a thickness of 8 mm is obtained.





EUROPEAN SEARCH REPORT

Application Number EP 01 11 0763

	DOCUMENTS CONSID	ERED TO BE RELEVANT		CONSTRUCTOR AND
Category	Citation of document with i of relevant pass	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)	
Α	US 5 536 910 A (SAM 16 July 1996 (1996- * column 1, line 7 * column 4, line 50 claim 1 *	1,5-7,11	G10K11/162	
Α	13 October 1998 (19	AMURA YASUTAKA ET AL) 98-10-13) - column 4, line 31 *	1,5-7,11	
A	PATENT ABSTRACTS OF vol. 1997, no. 05, 30 May 1997 (1997-0 & JP 09 016180 A (M LTD), 17 January 19 * abstract *	5-30) ITSUBISHI HEAVY IND	1,5-7,11	
A	PATENT ABSTRACTS OF vol. 016, no. 552 (20 November 1992 (1 & JP 04 211455 A (M CORP), 3 August 199 * abstract *	1,5-7,11	TECHNICAL FIELDS SEARCHED (Int.CI.7)	
A	PATENT ABSTRACTS OF vol. 014, no. 171 (3 April 1990 (1990- & JP 02 022181 A (N LTD;OTHERS: 01), 25 January 1990 (19 * abstract *	1,5-7,11		
A	PATENT ABSTRACTS OF vol. 2000, no. 10, 17 November 2000 (2 & JP 2000 185303 A 4 July 2000 (2000-0 * abstract *	1,5-7,11		
	The present search report has			
	Place of search	Date of completion of the search	1.40	Examiner
	THE HAGUE	22 January 2003	L Lori	ne, B
X : parti Y : parti docu A : tech O : non-	ATEGORY OF CITED DOCUMENTS cularly relevant if taken alone cularly relevant if combined with anot ment of the same category nological background -written disclosure mediate document	L.: document cited	ocument, but publis ate in the application for other reasons	shed on, or

EPO FORM 1503 03,82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number EP 01 11 0763

Category	Citation of document with in of relevant pass	dication, where appropriate,	Relevant to claim	CLASSIFICATION APPLICATION	
А	PATENT ABSTRACTS OF vol. 013, no. 595 (27 December 1989 (1 & JP 01 252590 A (N 9 October 1989 (198 * abstract *	JAPAN C-672), 989-12-27) DC CO LTD;OTHERS: 01),	1,5-7,11		
				TECHNICAL F SEARCHED	IELDS (Int.Cl.7)
m.m.may.					
	The present search report has b	een drawn up for all claims			
	Place of search	Date of completion of the search	-	Examiner	***************************************
·	THE HAGUE	22 January 2003	Lorr	ne, B	WARALL CO. F. N. St. Inc.
X : parti Y : parti docu A : tech O : non	ATEGORY OF CITED DOCUMENTS cularly relevant if taken alone cularly relevant if combined with anoti iment of the same category nological background—written disclosure rnediate document	E : earlier patent o after the filling o per D : document cited L : document cited	f in the application	hed on, or	

EPO FORM 1503 03.82 (P04001)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 01 11 0763

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-01-2003

	Patent document cited in search repo	rt	Publication date		Patent family member(s)	Publication date
US	5536910	Α	16-07-1996	NONE		Manuskan L
US	5820975	A	13-10-1998	JP	9101788 A	15-04-1997
JP	09016180	А	17-01-1997	JP	3217646 B2	09-10-2001
JP	04211455	Α	03-08-1992	JP KR US	2562848 B2 9403478 B1 5134037 A	11-12-1996 22-04-1994 28-07-1992
JP	02022181	A	25-01-1990	JP JP	1906860 C 6033188 B	24-02-1995 02-05-1994
JP	2000185303	A	04-07-2000	NONE	THE WAS THE	nd data man min duri dun min dise dipe dise dise dise cum min ann
JP	01252590 3	A	o CHIT TOUR CHARLE SHEE SHEE SHEE THEY MAN SHEE SHEE SHEE SHEE	NONE		Mi dels man come unto mon vice west join (ibin (ibin (ibin) unto come unto unto

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