

(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 737 833 A3

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
22.07.1998 Bulletin 1998/30

(51) Int. Cl.<sup>6</sup>: F16L 59/06, F25D 23/06,  
E04B 1/80

(43) Date of publication A2:  
16.10.1996 Bulletin 1996/42

(21) Application number: 96105358.4

(22) Date of filing: 03.04.1996

(84) Designated Contracting States:  
DE FR GB

(30) Priority: 14.04.1995 JP 89209/95

(71) Applicant:  
MITSUBISHI GAS CHEMICAL COMPANY, INC.  
Chiyoda-ku, Tokyo (JP)

(72) Inventors:  
• Himeshima, Tomoharu,  
c/o Mitsubishi Gas Chem. Co.  
Tokyo (JP)

• Watanabe, Takayuki,  
c/o Mitsubishi Gas Chem. Co.  
Tokyo (JP)

(74) Representative:  
Goddard, Heinz J., Dr. et al  
FORRESTER & BOEHMERT  
Franz-Joseph-Strasse 38  
80801 München (DE)

### (54) Vacuum heat insulator

(57) A vacuum heat insulator (10) comprising an oxygen absorbent (18) which does not require water to absorb oxygen, a dehydrating agent and an acidic gas absorbent. In a preferred embodiment, the oxygen absorbent (18) comprises (i) at least one of an unsaturated fatty acid compound and a chain hydrocarbon polymer having an unsaturated group as a main component, and (ii) an oxygen absorbent accelerator. When arranged in a vacuum container or vacuum package (12), the vacuum heat insulator (10) absorbs oxygen, water and acidic gases which permeate the vacuum container or package (12) or which are generated within the vacuum container or package (12), to thereby maintain the degree of vacuum and good thermal insulating properties.

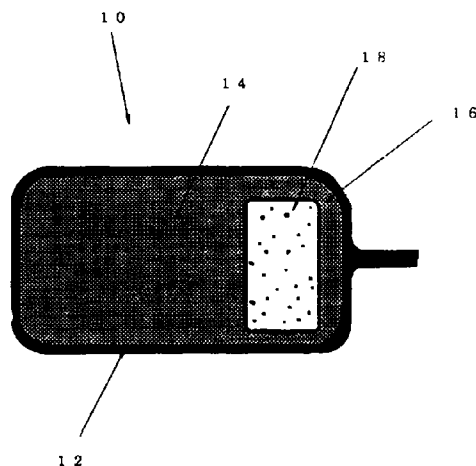


Figure 1

EP 0 737 833 A3



European Patent  
Office

EUROPEAN SEARCH REPORT

Application Number  
EP 96 10 5358

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
E	EP 0 715 138 A (MATSUSHITA REFRIGERATION) 5 June 1996 * page 3, line 24 - line 39; figure 5 * ---	1	F16L59/06 F25D23/06 E04B1/80
A	EP 0 437 930 A (WHIRLPOOL CO) 24 July 1991 * column 14, line 38 - line 47; figure 13 * ---	1,2,19	
A	WO 93 25843 A (GETTERS SPA) 23 December 1993 * page 9, line 11 - line 18; figure 1 * ---	1,19,22	
A	EP 0 434 226 A (WHIRLPOOL CO) 26 June 1991 * column 4, line 19 - line 28; figure 3 * ---	1,19	
A	US 5 273 801 A (BARRY PATRICK J ET AL) 28 December 1993 * column 5, line 52 - line 55; figure 2 * ---	1,19	
A	US 4 668 551 A (KAWASAKI TAMOTSU ET AL) 26 May 1987 * column 2, line 47 - line 65; figure 3 * ---	1,22	
A	US 4 444 821 A (YOUNG JAMES R ET AL) 24 April 1984 * column 4, line 60 - column 5, line 18; figure 4 * -----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6) F25D E04B E06B F17C
Place of search		Date of completion of the search	Examiner
THE HAGUE		29 May 1998	Jessen, F
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03/82 (P04C01)