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Published:

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- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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(54) Title: MULTILAYER COMPONENT FOR THE ENCAPSULATION OF A SENSITIVE ELEMENT

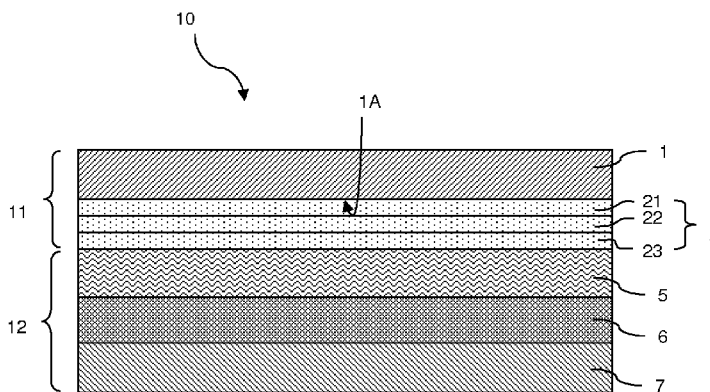


Fig. 1

(57) Abstract: This multilayer component (11) for encapsulating an element (12) which is sensitive to air and/or moisture comprises an organic polymer layer (1) and at least one barrier stack (2). The barrier stack (2) comprises at least one sequence of layers consisting of a retention layer (22) sandwiched between two high-activation-energy layers (21, 23), in which: - for each of the two high-activation-energy layers (21, 23), the difference in activation energy for water vapor permeation between, on the one hand, a reference substrate coated with the high-activation-energy layer and, on the other hand, this same reference substrate when bare is greater than or equal to 20 kJ/mol; and - the ratio of the effective water vapor diffusivity in the retention layer (22) on a reference substrate to the water vapor diffusivity in this same reference substrate when bare is strictly less than 0.1.



A. CLASSIFICATION OF SUBJECT MATTER**H01L 51/52(2006.01)i, H05B 33/04(2006.01)i**

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)

H01L 51/52; H05B 33/00; B32B 9/00; B32B 5/16; H01L 23/28; H05B 33/10; H01J 9/20; H01J 1/70

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: encapsulation, barrier stack, retention layer, high activation energy layer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010-0089636 A1 (RAMADAS SENTHIL KUMAR et al.) 15 April 2010 See figures 2A-5, paragraph [0075]-[117]	1-3
A	US 2004-0160178 A1 (YONG QIU et al.) 19 August 2004 See abstract, figure 1, paragraph [0023]-[0036]	1-3
A	US 2003-0104753 A1 (GORDON LEE GRAFF et al.) 05 June 2003 See abstract, figure 1, claims 1-5	1-3
A	US 2010-0215929 A1 (SEO SANG-JOON et al.) 26 August 2010 See abstract, claims 1-10, figures 3-5,	1-3

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"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

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

30 NOVEMBER 2012 (30.11.2012)

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 16
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
Claim 16 is dependent on multiple dependent claim 15, thereby claim 16 is unclear.

3. Claims Nos.: 4-15, 17
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/032616

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010-0089636 A1	15.04.2010	AU 2006-350626 A1 CN 101518151 A EP 2082619 A1 EP 2082619 A4 JP 2010-511267 A JP 2010-511267 T KR 10-1130199 B1 TW 200847841 A WO 2008-057045 A1	15.05.2008 26.08.2009 29.07.2009 06.04.2011 08.04.2010 08.04.2010 23.04.2012 01.12.2008 15.05.2008
US 2004-0160178 A1	19.08.2004	None	
US 2003-0104753 A1	05.06.2003	None	
US 2010-0215929 A1	26.08.2010	None	