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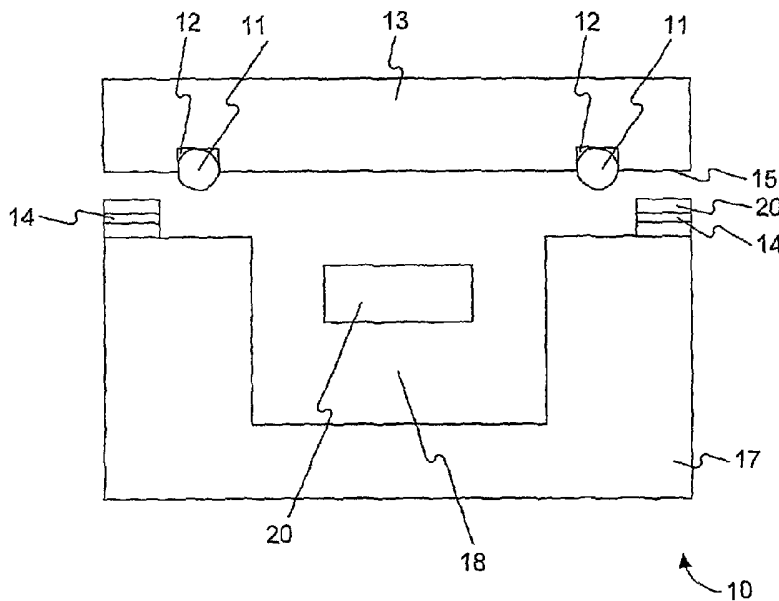
- (51) International Patent Classification⁷: **H01L 21/50**, 23/10 21218 (US). **KNIO, Omar, M.** [US/US]; 11970 Mays Chapel Road, Timonium, MD 21093 (US).
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- (71) Applicant (for all designated States except US): **REACTIVE NANOTECHNOLOGIES, INC.** [US/US]; 111 Lake Front Drive, Hunt Valley, MD 21030 (US).
- (74) Agent: **GARRETT, Arthur, S.**; Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, 901 New York Avenue, NW, Washington, D.C. 20001-4413 (US).
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- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **VAN HEERDEN, David, Peter** [ZA/US]; 4209 Eastview Road, Baltimore, MD 21218 (US). **DEGER, Dale** [US/US]; 19 Kensington Drive, Littlestown, PA 17340-9205 (US). **WEIHS, Timothy, P.** [US/US]; 3422 University Place, Baltimore, MD
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[Continued on next page]

(54) Title: HERMETICALLY SEALED PRODUCT AND RELATED METHODS OF MANUFACTURE

BEFORE JOINING



(57) Abstract: Embodiments of the invention include a method for sealing a container. The method includes, providing at least two components of the container, positioning a crushable material between the at least two components, positioning a reactive multilayer material between the at least two components, deforming the crushable material so as to form a seal between the at least two components, chemically transforming the reactive multilayer material so as to join the at least two components.

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TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
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INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/US2004/010366

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01L21/50 H01L23/10				
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) IPC 7 H01L				
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 practical, search terms used) EP0-Internal, PAJ				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
Y	US 5 477 009 A (BREDECKE WALTER H ET AL) 19 December 1995 (1995-12-19) column 4, line 40 - column 9, line 21; figures 9,10 -----	1-17, 20-39, 42-59, 62-69		
Y	US 5 381 944 A (MAKOWIECKI DANIEL M ET AL) 17 January 1995 (1995-01-17) the whole document ----- -/--	1-17, 20-22, 29-39, 42,43, 49-59, 62,63,69		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.				
<input checked="" type="checkbox"/> Patent family members are listed in annex.				
° Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document 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 another 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 </td> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document 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 another 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
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document 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 another 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	Date of mailing of the international search report			
3 February 2005	11/02/2005			
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Edmeades, M			

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/010366

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/179921 A1 (COHN MICHAEL B) 5 December 2002 (2002-12-05) paragraphs [0210] - [0215] -----	16-28, 38-48, 59-68
A	US 6 413 800 B1 (KYLE ROBERT JOSEPH STEPHEN) 2 July 2002 (2002-07-02) the whole document -----	1, 30, 50
Y	US 5 956 576 A (POMPEO FRANK L ET AL) 21 September 1999 (1999-09-21) column 7, line 62 - column 8, line 50; figure 3 -----	27, 28, 48, 68
A	"TECHNIQUE FOR OBTAINING AN ENVIRONMENTALLY SECURE ADHESIVE SEAL" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 29, no. 7, 1 December 1986 (1986-12-01), pages 3085-3087, XP002025799 ISSN: 0018-8689 the whole document -----	18, 19, 23-26, 40, 41, 44-47, 60, 61, 64-67
Y	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 14, 5 March 2001 (2001-03-05) -& JP 2000 323593 A (YAZAKI CORP), 24 November 2000 (2000-11-24) abstract -----	23-28, 44-48, 64-68

INTERNATIONAL SEARCH REPORT

international application No.
PCT/US2004/010366

Box 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.:
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:

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

Box 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:

see additional sheet

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.:

1-69

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-69

container, method of manufacture thereof, and kit for assembling the same comprising a first seal comprising a crushable material and a second seal comprising a reactive multilayer material (or the remnants of the reaction thereof).

2. claims: 70-76

seal testing apparatus suitable for triggering a reaction in a reactive multilayer material and detecting a leak from a container

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/US2004/010366
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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5477009	A	19-12-1995	NONE	
US 5381944	A	17-01-1995	NONE	
US 2002179921	A1	05-12-2002	NONE	
US 6413800	B1	02-07-2002	US 5641713 A EP 0734061 A2 JP 8274204 A	24-06-1997 25-09-1996 18-10-1996
US 5956576	A	21-09-1999	NONE	
JP 2000323593	A	24-11-2000	NONE	