



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US98/06194 (22) International Filing Date: 31 March 1998 (31.03.98) (30) Priority Data: 60/042,585 2 April 1997 (02.04.97) US 60/043,812 14 April 1997 (14.04.97) US 08/946,612 7 October 1997 (07.10.97) US (71) Applicant: DENTSPLY INTERNATIONAL INC. [US/US]; 570 West College Avenue, P.O. Box 872, York, PA 17404-0872 (US). (72) Inventors: SUBELKA, John, C.; 21 Whistler Way, Marlboro, NJ 07746 (US). JEFFERIES, Steven, R.; 3692 Wingfield Drive, York, PA 17402 (US). KAPPERMAN, Donald, A.; 501 Lakelawn Drive, Milford, DE 19963 (US). HAMMES- FAHR, Paul, D.; 605 Quail Run, Wyoming, DE 19934 (US). (74) Agents: HURA, Douglas, J. et al.; Dentsply International Inc., 570 West College Avenue, P.O. Box 872, York, PA 17404-0872 (US).		(81) Designated States: AU, BR, CA, JP, MX, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims</i> <i>and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 11 March 1999 (11.03.99)
(54) Title: DENTAL COMPOSITE RESTORATIVE MATERIAL AND METHOD OF RESTORING A TOOTH (57) Abstract A dental composite material includes a hardenable resin matrix and a filler component. The filler component includes (a) a first plurality of preferably glass particles having an average particle size of from about 1 to about 10 micrometers; (b) a second plurality of preferably glass particles having an average particle size of from about 0.1 to about 1 micrometers; and (c) a plurality of filler particles having an average particle size of from about 0.01 to about 0.04 micrometers. A method according to the invention includes compacting a dental composite material into a prepared tooth cavity, wherein the material has a packability index above about 300 g/mm².		

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EE	Estonia						

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/06194

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 A61K6/083

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 6 A61K B65D

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	EP 0 839 511 A (TOKUYAMA CORP) 6 May 1998 see page 3, line 19 - page 5, line 35 see claims ---	1,2,4-9, 17,19
X	EP 0 530 926 A (KANEBO LTD ;MITSUBISHI CHEM IND (JP)) 10 March 1993	1-10,17
Y	see page 3, line 19 - page 5, line 35 see abstract see claims; examples ---	11,18
Y	US 4 514 174 A (DOUGHERTY EMERY W ET AL) 30 April 1985 see column 2, line 49 - column 3, line 19 see column 7, line 1 - line 61 see claims; examples --- -/--	11,18



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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"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

21 January 1999

Date of mailing of the international search report

29/01/1999

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 475 239 A (IVOCLAR AG) 18 March 1992 see column 3, line 5 - column 5, line 49 see claims; examples ---	1,2, 4-10,17, 19
A	DE 195 24 362 A (TOKUYAMA CORP) 11 January 1996 see page 3, line 9 - line 68 see page 4, line 2 - line 7 see page 7, line 17 - page 8, line 29 ---	1-10,17, 19
A	DE 34 16 083 A (MUEHLBAUER ERNST DIPL KAUFM) 31 October 1985 see page 8, paragraph 2 see page 10, paragraph 1 see page 11, paragraph 4 see figures ---	12-14
A	WO 96 03090 A (MUEHLBAUER ERNST KG ;MUEHLBAUER ERNST (DE); AHLERS MARCUS OLIVER () 8 February 1996 ---	12-14
A	WO 92 08419 A (MINNESOTA MINING & MFG) 29 May 1992 -----	12-14

INTERNATIONAL SEARCH REPORT

I. national application No.

PCT/US 98/06194

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: 11 and 18
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 11 and 18
are directed to a method of treatment of the human/animal
body, the search has been carried out and based on the alleged
effects of the composition.
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 II Observations where unity of invention is lacking (Continuation of item 2 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.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/06194

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