



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>C03C 25/02, C08F 290/06, C08L 71/02, 63/10</b> <b>C09D 171/02, 163/10, 175/16, G02B 6/44</b>	<b>A3</b>	<b>(11) International Publication Number:</b> <b>WO 98/39264</b> <b>(43) International Publication Date:</b> 11 September 1998 (11.09.98)
<b>(21) International Application Number:</b> PCT/NL98/00132 <b>(22) International Filing Date:</b> 5 March 1998 (05.03.98)  <b>(30) Priority Data:</b> 08/812,569                      6 March 1997 (06.03.97)                      US  <b>(71) Applicant:</b> DSM N.V. [NL/NL]; Het Overloon 1, NL-6411 TE Heerlen (NL).  <b>(72) Inventor:</b> SZUM, David, Michael; 646 N. Oaklawn Avenue, Elmhurst, IL 60126 (US).  <b>(74) Agent:</b> DEN HARTOG, Jeroen, Hendrikus, Joseph; Octrooibureau DSM, P.O. Box 9, NL-6160 MA Geleen (NL).		<b>(81) Designated States:</b> AU, CA, JP, KR, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>  <b>(88) Date of publication of the international search report:</b> 3 December 1998 (03.12.98)
<b>(54) Title:</b> PROTECTIVE MATERIALS FOR OPTICAL FIBERS WHICH DO NOT SUBSTANTIALLY DISCOLOR		
<b>(57) Abstract</b> <p>Radiation-curable compositions are disclosed which, after cure, are substantially non-yellowing. The compositions are particularly tailored for coating and bundling of optical fibers. A first preferred composition is based on a polyether-type of oligomer diluted with reactive diluents. Isocyanurate structures are included in the composition to raise Tg. A second preferred composition is based on fatty oil comprising (meth)acrylate groups and bisphenol A derivatives comprising (meth)acrylate groups. Photoinitiators can be included to increase cure speed. The formulations do not include material amounts of ingredients which tend to cause yellowing or, in theory, extended conjugation in the cured compositions.</p>		

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/NL 98/00132

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C03C25/02 C08F290/06 C08L71/02 C08L63/10 C09D171/02  
C09D163/10 C09D175/16 G02B6/44

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 C03C C09D C08F C08L G02B

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.
X	US 5 539 014 A (SWEDO RAYMOND J ET AL) 23 July 1996 see column 6, line 19 - line 24 see column 17, line 50 - column 19, line 2 ---	1-5
X	US 5 146 531 A (SHUSTACK P J) 8 September 1992 cited in the application see column 11, line 26 - line 58 see claim 78; example 8 ---	1-4
X	WO 96 11217 A (DSM NV) 18 April 1996 see page 1, paragraph 3 - page 2, line 11 see page 12, line 34 - page 13, line 11 see claims; examples --- -/--	15, 16, 20



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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PCT/NL 98/00132

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHEMICAL ABSTRACTS, vol. 92, no. 6, 11 February 1980 Columbus, Ohio, US; abstract no. 43533, XP002078876 see abstract & JP 54 120005 A (TOYO INK MFG CO LTD) 18 September 1979	21
X	----- CHEMICAL ABSTRACTS, vol. 87, no. 20, 14 November 1977 Columbus, Ohio, US; abstract no. 153584, XP002078877 see abstract & JP 52 071585 A (MATSUI KAGAKU KOGYOSHO KK) 15 June 1977	21
A	----- EP 0 565 798 A (BORDEN INC) 20 October 1993 see claims 1,14-20,30; examples & US 5 352 712 A cited in the application	1-16,20, 22
A	----- S.R. SCHMID: JOURNAL OF RADIATION CURING, vol. 11, no. 2, 1984, pages 19-23, XP002078874 Stamford, US cited in the application see the whole document	1-22
A	----- T.E. GISMONDI: JOURNAL OF RADIATION CURING, vol. 11, no. 2, 1984, pages 14-18, XP002078875 Stamford, US see the whole document	1-22
P,A	----- EP 0 780 712 A (BORDEN INC) 25 June 1997  see page 2, line 49 - line 52 see page 4, line 5 - line 32 see page 5, line 33 - line 38 see page 9, line 49 - page 10, line 57 & EP 0 407 004 A cited in the application	1-16,20, 22
A	----- EP 0 566 801 A (BORDEN INC) 27 October 1993 see the whole document & US 5 352 712 A cited in the application ----- -/--	1-16,20, 22

# INTERNATIONAL SEARCH REPORT

Intern al Application No

PCT/NL 98/00132

## 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 4 514 037 A (BISHOP T E ET AL) 30 April 1985 cited in the application see the whole document ---	1-16,20, 22
A	US 4 900 126 A (JACKSON KENNETH W ET AL) 13 February 1990 cited in the application see claims -----	8,9

# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/NL 98/00132

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5539014 A	23-07-1996	US 5514727 A EP 0773977 A JP 10502961 T WO 9602596 A US 5491178 A US 5672675 A	07-05-1996 21-05-1997 17-03-1998 01-02-1996 13-02-1996 30-09-1997
US 5146531 A	08-09-1992	US 5536529 A US 5639846 A US 5352712 A CA 1321671 A JP 8059302 A	16-07-1996 17-06-1997 04-10-1994 24-08-1993 05-03-1996
WO 9611217 A	18-04-1996	JP 8109229 A AU 3755495 A CA 2202253 A EP 0785959 A	30-04-1996 02-05-1996 18-04-1996 30-07-1997
EP 0565798 A	20-10-1993	US 5352712 A AT 162163 T CA 2082613 A DE 69224059 D DE 69224059 T DK 565798 T EP 0745570 A ES 2111054 T JP 5306147 A US 5536529 A US 5639846 A	04-10-1994 15-01-1998 17-10-1993 19-02-1998 10-06-1998 02-03-1998 04-12-1996 01-03-1998 19-11-1993 16-07-1996 17-06-1997
EP 0780712 A	25-06-1997	BR 9601168 A CA 2170118 A JP 9297225 A	06-01-1998 21-06-1997 18-11-1997
EP 0566801 A	27-10-1993	CA 2082614 A JP 5306146 A US 5527835 A US 5538791 A US 5587403 A	25-10-1993 19-11-1993 18-06-1996 23-07-1996 24-12-1996

# INTERNATIONAL SEARCH REPORT

information on patent family members

Inter. Patent Application No

PCT/NL 98/00132

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4514037      A	30-04-1985	DE    3469540 A	07-04-1988
		EP    0141330 A	15-05-1985
		JP    1956116 C	28-07-1995
		JP    6076468 B	28-09-1994
		JP    60108477 A	13-06-1985
-----			
US 4900126      A	13-02-1990	CA    1331530 A	23-08-1994
		CN    1039121 A,B	24-01-1990
		DK    323789 A	31-12-1989
		EP    0349206 A	03-01-1990
		JP    2047606 A	16-02-1990
		JP    2716212 B	18-02-1998
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