

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁵ : C08L 69/00, 67/02, 53/00 C08L 51/00, 71/12, 101/00		A3	(11) International Publication Number: WO 93/19128
			(43) International Publication Date: 30 September 1993 (30.09.93)
(21) International Application Number: PCT/US93/02176		(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 10 March 1993 (10.03.93)			
(30) Priority data:		Published	
07/850,324	10 March 1992 (10.03.92) US	With international search report.	
07/850,329	10 March 1992 (10.03.92) US	Before the expiration of the time limit for amending the	
07/850,335	10 March 1992 (10.03.92) US	claims and to be republished in the event of the receipt of	
07/851,371	10 March 1992 (10.03.92) US	amendments.	
(71) Applicant: THE DOW CHEMICAL COMPANY [US/US]; 2030 Dow Center, Abbott Road, Midland, MI 48640 (US).		(88) Date of publication of the international search report: 25 November 1993 (25.11.93)	
(72) Inventor: LAUGHNER, Michael, K. ; 1403 North Road, Lake Jackson, TX 77566 (US).			
(74) Agent: LANGWORTHY, John, A.; The Dow Chemical Company, Patent Dept., B-1211, Freeport, TX 77541 (US).			
(54) Title: POLYMERS AND POLYMER BLENDS MODIFIED WITH POLY(PHENYLENE ETHER)			
(57) Abstract			
A matrix resin such as a polycarbonate/polyester blend, a polycarbonate, a vinyl aromatic copolymer or an acrylate polymer or copolymer is admixed in a composition with poly(phenylene ether), and/or with a poly(phenylene ether) concentrate containing poly(phenylene ether), polystyrene, a vinyl aromatic copolymer, polyamide, polycarbonate, polyester, poly(alkyl acrylate), and/or poly(alkyl methacrylate). The compositions may also optionally contain additional vinyl aromatic copolymer as a separate component, impact modifiers, thermoplastic molding materials including polystyrene, polyolefin, polyamide, poly(vinyl chloride), polyurethane, poly(methyl methacrylate) and polyacetal, and conventional additives such as dyes and pigments. The compositions when molded, particularly when the poly(phenylene ether) content thereof is low (for example, 5 weight percent or less) show a desirably low gloss, and a desirable balance of other properties.			

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	FR	France	MR	Mauritania
AU	Australia	GA	Gabon	MW	Malawi
BB	Barbados	GB	United Kingdom	NL	Netherlands
BE	Belgium	GN	Guinea	NO	Norway
BF	Burkina Faso	GR	Greece	NZ	New Zealand
BG	Bulgaria	HU	Hungary	PL	Poland
BJ	Benin	IE	Ireland	PT	Portugal
BR	Brazil	IT	Italy	RO	Romania
CA	Canada	JP	Japan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SK	Slovak Republic
CI	Côte d'Ivoire	LJ	Liechtenstein	SN	Senegal
CM	Cameroon	LK	Sri Lanka	SU	Soviet Union
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	MC	Monaco	TG	Togo
DE	Germany	MG	Madagascar	UA	Ukraine
DK	Denmark	ML	Mali	US	United States of America
ES	Spain	MN	Mongolia	VN	Viet Nam
FI	Finland				

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 93/02176

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.C1.5	C 08 L 69/00	C 08 L 67/02
C 08 L 51/00	C 08 L 71/12	C 08 L 101/00
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.C1.5	C 08 L	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ^o	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP,A,0382548 (SUMITOMO CHEMICAL COMPANY) 16 August 1990 see the whole document ---	1-11
X	EP,A,0306774 (GENERAL ELECTRIC COMPANY) 15 March 1989 see page 10, line 49 - page 11, line 9; claims 1-26 ---	1,3-11
X	WO,A,8700850 (GENERAL ELECTRIC COMPANY) 12 February 1987 see claims 1-33 ---	1,3-11
X	EP,A,0208940 (GENERAL ELECTRIC COMPANY) 21 January 1987 see the whole document ---	1-11
	-/-	
^o Special categories of cited documents: ¹⁰ "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 "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		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
30-06-1993	22. 10. 93	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	DECOCKER	

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
P,X	WO,A,9215643 (THE DOW CHEMICAL COMPANY) 17 September 1992 see claims 1-14 ---	1-11
A	EP,A,0336195 (GENERAL ELECTRIC COMPANY) 11 October 1989 see claims 1-8; table 1 ---	1
A	EP,A,0229957 (GENERAL ELECTRIC COMPANY) 29 July 1987 see claims 1-18 -----	1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 93/02176

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.:
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 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: Claims 1-11
2: Claims 12-22
3: Claims 23-33
4: Claims 34-46

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.:
1-11
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.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

US 9302176

SA 71664

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 13/10/93
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A- 0382548	16-08-90	JP-A- 2242848	27-09-90
		CA-A- 2009242	09-08-90
		US-A- 5116906	26-05-92
EP-A- 0306774	15-03-89	US-A- 4916185	10-04-90
		JP-A- 1126365	18-05-89
		US-A- 5151460	29-09-92
WO-A- 8700850	12-02-87	AU-B- 586021	29-06-89
		AU-A- 6199086	05-03-87
		EP-A- 0232367	19-08-87
		JP-T- 63500387	12-02-88
		US-A- 4978715	18-12-90
		US-A- 5081184	14-01-92
		US-A- 5079297	07-01-92
		CA-A- 1267471	03-04-90
		US-A- 4806297	21-02-89
EP-A- 0208940	21-01-87	US-A- 4804700	14-02-89
		JP-A- 62043453	25-02-87
WO-A- 9215643	17-09-92	US-A- 5196479	23-03-93
		AU-A- 1558592	06-10-92
EP-A- 0336195	11-10-89	NL-A- 8800799	16-10-89
		JP-T- 2504041	22-11-90
		WO-A- 8909241	05-10-89
EP-A- 0229957	29-07-87	US-A- 4710534	01-12-87
		EP-A- 0352822	31-01-90
		JP-A- 62169850	27-07-87