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(54) Title: MODIFIED COPOLYESTERS AND IMPROVED MULTILAYER REFLECTIVE FILMS

(57) Abstract

A multilayered polymer film includes a first set of optical layers and a second set of optical layers. The first set of optical layers is made from a polyester which is often birefringent. The polyesters of the first set of optical layers typically have a composition in which 70–100 mol % of the carboxylate subunits are first carboxylate subunits and 0–30 mol % are comonomer carboxylate subunits and 70 to 100 mol % of the glycol subunits are first glycol subunits and 0 to 30 mol % of the glycol subunits are comonomer glycol subunits, where at least 0.5 mol % of the combined carboxylate and glycol subunits are comonomer carboxylate or comonomer glycol subunits. The multilayered polymer film may be used to form, for example, a reflective polarizer or a mirror.

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INTERNATIONAL SEARCH REPORT

Interr onal Application No
PCT/US 99/00506

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B32B7/02 B32B27/36 G02B1/10 G02B5/30 G02B5/08
C08G63/12 C08G63/199 C08G63/20

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 B32B G02B C08G

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.
A	WO 97 01774 A (MINNESOTA MINING & MFG) 16 January 1997 (1997-01-16) claims 1-7,15-21	1-14
A	WO 96 19347 A (MINNESOTA MINING & MFG) 27 June 1996 (1996-06-27) cited in the application page 27, line 24 -page 32, line 15; claims	1-14
A	US 3 610 729 A (ROGERS HOWARD G) 5 October 1971 (1971-10-05) the whole document	1-14
A	US 4 310 584 A (COOPER SCOTT A ET AL) 12 January 1982 (1982-01-12) the whole document	1-14

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
17 September 1999	07. 10. 1999

Name and mailing address of the ISA	Authorized officer
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	Decocker, L

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Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	D. J. FENOGLIO AND J. J. FOSTER: "The effect of the t-butyl substituent on polymer properties in homopolymer systems" JOURNAL OF POLYMER SCIENCE, POLYMER CHEMISTRY EDITION., vol. 28, no. 10, September 1990 (1990-09), pages 2753-2764, XP002115659 JOHN WILEY AND SONS. NEW YORK., US ISSN: 0887-624X page 2764, conclusion page 2754, line 8 - line 23 ---	15
A	EP 0 489 482 A (DAY GLO COLOR CORP) 10 June 1992 (1992-06-10) page 3, line 24 - line 58; claims 1-3 ---	15
A	CHEMICAL ABSTRACTS, vol. 87, no. 2, 11 July 1977 (1977-07-11) Columbus, Ohio, US; abstract no. 7399, STASEK EMANUEL ET AL.: "Modified poly(ethylene terephthalate)" XP002115660 abstract & CS 164 399 A -----	15

INTERNATIONAL SEARCH REPORT

Inte ational application No.
PCT/US 99/00506

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.:
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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:

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.:

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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: 1-14

   Multilayer reflective films

2. Claim : 15

   A polymer comprising a copolyester

INTERNATIONAL SEARCH REPORT

ormation on patent family members

Intern- nal Application No
PCT/US 99/00506

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9701774 A	16-01-1997	AU 692715 B	11-06-1998
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