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(54) Title: POLYURETHANE DISPERSANTS

(57) Abstract: The present invention provides a non-aqueous composition containing a particulate solid, an organic medium and a polyurethane dispersant having an essentially linear backbone and laterally attached solvent-solubilising side chains of a polyester, a polyether, a polyacrylate or a polyolefin including mixtures of such side chains.

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INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08G18/08 C08G18/40 C08G18/48 C08G18/50

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 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)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 442 652 A (ICI PLC ; ICI RESINS BV (NL)) 21 August 1991 (1991-08-21) page 6, line 56 - page 7, line 9 page 13, line 29 - line 30 page 13, line 44 - line 54 -----	1-14, 19-21
A	US 4 000 218 A (CRITCHFIELD FRANK EDWARD ET AL) 28 December 1976 (1976-12-28) column 5, line 67 - column 6, line 18 column 14, line 50 - line 56 column 15, line 10 - line 18 example 1 ----- -/--	1-14, 19-21

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"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

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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PCT/US2004/014790

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01/80987 A (SUNDERLAND PATRICK JOHN ; ANNABLE TOM (GB); THETFORD DEAN (GB); AVECIA) 1 November 2001 (2001-11-01) cited in the application page 1, line 1 - line 3 Formula 5 on page 6 -----	1-14, 19-21
A	GB 1 360 007 A (DULUX AUSTRALIA LTD) 17 July 1974 (1974-07-17) example 23 claim 1 -----	1-14, 19-21
X	US 4 190 566 A (NOLL KLAUS ET AL) 26 February 1980 (1980-02-26) column 2, line 1 - line 13 column 2, line 33 - line 38 -----	15-18
X	US 3 925 582 A (SAMPLE JR THOMAS E ET AL) 9 December 1975 (1975-12-09) example 1 -----	15-18
X	EP 0 060 430 A (GOLDSCHMIDT AG TH) 22 September 1982 (1982-09-22) cited in the application example 3 -----	15-18
X	WO 01/68783 A (3M INNOVATIVE PROPERTIES CO) 20 September 2001 (2001-09-20) table 1 -----	15-18
X	WO 97/19120 A (AKZO NOBEL NV ; BUTER ROELOF (NL); COENJAARTS NORBERT JOHAN (NL)) 29 May 1997 (1997-05-29) claim 3 -----	15-18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/014790

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.:
1-14(part), 15-20, 21(part)
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.

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(part), 19 ,20, 21(part)

Polyurethane dispersant having an essentially linear backbone and laterally attached solvent-solubilising polyester side chains, optionally in the form of a non-aqueous composition comprising, apart from the polyurethane, a particulate solid and an organic medium

2. claims: 1-14(part), 21(part)

Polyurethane dispersant having an essentially linear backbone and laterally attached solvent-solubilising polyether side chains, in the form of a non-aqueous composition comprising, apart from the polyurethane, a particulate solid and an organic medium

3. claims: 1-14(part), 21(part)

Polyurethane dispersant having an essentially linear backbone and laterally attached solvent-solubilising polyacrylate side chains, in the form of a non-aqueous composition comprising, apart from the polyurethane, a particulate solid and an organic medium

4. claims: 22(part), 23(part)

Polyurethane dispersant having an essentially linear backbone and laterally attached solvent-solubilising polyolefin side chains, in the form of a non-aqueous composition comprising, apart from the polyurethane, a particulate solid and an organic medium

5. claims: 15-18

Polyurethane dispersant having an essentially linear backbone and laterally attached solvent-solubilising polyether chains of poly(C2-4-alkylene oxide) which contains less than 60% by weight ethylene oxide relative to the poly(C2-4-alkylene oxide) chain

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/014790

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Information on patent family members

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