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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

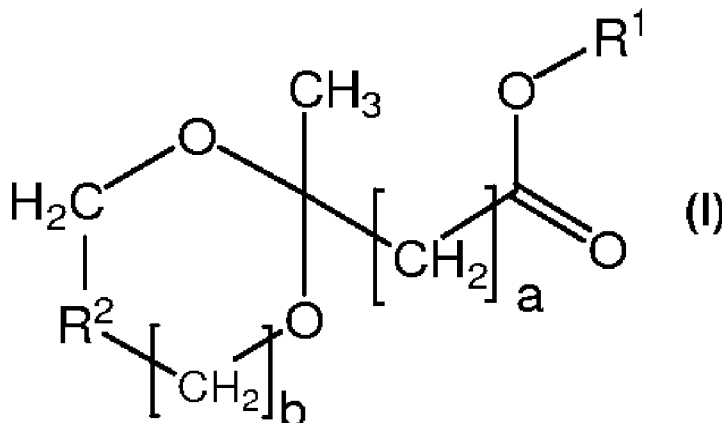
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- with international search report (Art. 21(3))

(88) Date of publication of the international search report:

19 April 2012

(54) Title: ALKYL KETAL ESTERS AS DISPERSANTS AND SLIP AGENTS FOR PARTICULATE SOLIDS, METHODS OF MANUFACTURE, AND USES THEREOF



(57) Abstract: Disclosed herein is a dispersion comprising a liquid or semi-solid continuous phase, a dispersed solid phase comprising a plurality of organic, inorganic or inorganic-organic particles, and an alkyl ketal ester having the structure (I) wherein a is 0 or an integer of 1 to 12, specifically 1 to 6, more specifically 1 to 4; b is 0 or 1; R² is a divalent C₁₋₆ group optionally substituted with up to 5 hydroxyl groups; and R¹ is C₁₋₆ alkyl, and wherein at least a portion of the alkyl ketal ester is present in the continuous phase, on a surface of at least some of the dispersed particles, or a combination thereof.

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A. CLASSIFICATION OF SUBJECT MATTER*C09D 7/12(2006.01)i, B01F 17/00(2006.01)i, A61K 8/18(2006.01)i, C09D 11/00(2006.01)i, G03G 9/08(2006.01)i*

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)

C09D 7/12; C08G 63/42; C07D 317/12; C07D 407/02; A61K 7/021; C07D 407/00; C04B 14/00; A61K 7/00; C08G 18/77; A61K 8/18

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: dispersion, alkyl ketal ester, dispersed solid, dispersed particles, continuous

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0012543 A1 (IMPERIAL CHEMICAL INDUSTRIES PLC) 25 June 1980 See claims 1-12	1-2, 17-18
A	WO 2007-062118 A2 (AROMAGEN CORPORATION et al.) 31 May 2007 See abstract and claim 1	1-2, 17-18
A	WO 2009-032905 A1 (SEGETIS, INC. et al.) 12 March 2009 See abstract and claim 1	1-2, 17-18
A	US 06083490 A (ELLIS; DAVID GRAHAM et al.) 04 July 2000 See abstract and claim 1	1-2, 17-18
A	US 7503970 B2 (DRANSFIELD GRAHAM PAUL et al.) 17 March 2009 See abstract and claim 1	1-2, 17-18

 Further documents are listed in the continuation of Box C. See patent family 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 application or patent 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 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

"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

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Name and mailing address of the ISA/KR

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Box No. 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.: 5-7, 9, 11-16, 24-25
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:

The claims refer to unsearchable claims which do not comply with PCT Rule 6.4(a). Thus, it is not possible to make meaningful search regarding claims 5-7, 9, 11-16 and 24-25.

3. Claims Nos.: 3-4, 8, 10, 19-23
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. 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:

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 and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2011/035974

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