



(43) International Publication Date
18 May 2012 (18.05.2012)

(10) International Publication Number
WO 2012/065114 A3

(51) International Patent Classification:

C08G 63/42 (2006.01) *C07D 407/04* (2006.01)
C08L 67/02 (2006.01) *C07D 493/10* (2006.01)
C08L 59/00 (2006.01)

(21) International Application Number:

PCT/US2011/060450

(22) International Filing Date:

11 November 2011 (11.11.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/412,573 11 November 2010 (11.11.2010) US
61/508,974 18 July 2011 (18.07.2011) US

(71) Applicant (for all designated States except US): **SEGET-IS, INC.** [US/US]; 680 Mendelssohn Avenue N, Golden Valley, MN 55427 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MULLEN, Brian, D.** [US/US]; 825 Amur Circle, Delano, MN 55328 (US). **SCHOLTEN, Marc, D.** [US/US]; 933 Montana Avenue West, Saint Paul, MN 55117 (US). **LEIBIG, Cora, M.** [US/US]; 15292-80th Place North, Maple Grove, MN 55311 (US). **MULLEN, Tara, J.** [US/US]; 825 Amur Circle, Delano, MN 55328 (US). **BADARINARAYANA, Vivek** [IN/US]; 1510 Zarthan Ave. S., Unit 111, St. Louis Park, MN 55416 (US).

(74) Agent: **REIMER, Leah, M.**; Cantor Colburn LLP, 20 Church St., 22nd Floor, Hartford, CT 06103 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

19 July 2012

(54) Title: POLYKETAL ADDUCTS, METHODS OF MANUFACTURE AND USES THEREOF

(57) Abstract: Disclosed herein is a polyketal adduct obtained by forming an ester between a hydrocarbon polyol and a keto-carboxylic acid to produce an intermediate polyketocarboxylic ester. The intermediate polyketocarboxylic ester can be purified via crystallization to achieve purities of greater than 99.0% and then ketalized to produce the polyketal adduct, which can be used in polymer compositions. The polyketal adduct I is obtained at high purity and at high yield.



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A. CLASSIFICATION OF SUBJECT MATTER*C08G 63/42(2006.01)i, C08L 67/02(2006.01)i, C08L 59/00(2006.01)i, C07D 407/04(2006.01)i, C07D 493/10(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)

C08G 63/42; A61K 8/49; C07D 317/20; C07D 317/30; C07C 217/30; A61K 31/381; C07D 493/10; C07D 407/04

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: ketal, keto, polyol, diol, carbonyl, carboxy, ester

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2008-0242721 A1 (SELIFONOV, SERGEY) 02 October 2008 See abstract; paragraphs [0004],[0011],[0014],[0016],[0023]-[0026]	1-3, 19-22
A	US 06143908 A (HINOUE, KAZUMASA et al.) 07 November 2000 See abstract; column 2, lines 24-25	1-3, 19-22
A	KR 10-2010-0075623 A (SEGETIS INC.) 02 July 2010 See abstract; paragraphs [0020],[0023],[0025],[0034],[0036],[0070],[0085],[0086],[0102],[0106]	1-3, 19-22
A	US 2007-0155820 A1 (GANT G. THOMAS) 05 July 2007 See the whole document	1-3, 19-22



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

24 MAY 2012 (24.05.2012)

Date of mailing of the international search report

29 MAY 2012 (29.05.2012)

Name and mailing address of the ISA/KR

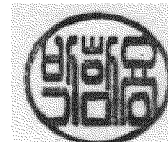
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Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US2011/060450**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.: 7, 8, 36, 37, 40
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:
Claims 7, 8, 36 and 40 refers to claims which are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Claim 37 refers to claim 37 itself.
3. ☒ Claims Nos.: 4-6, 10-18, 23-35, 37-39, 41, 42
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/US2011/060450

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