

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
3 January 2008 (03.01.2008)

PCT

(10) International Publication Number  
**WO 2008/002381 A3**

(51) International Patent Classification:  
**C08F 210/16** (2006.01)

(21) International Application Number:  
PCT/US2007/013231

(22) International Filing Date: 5 June 2007 (05.06.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/816,841 27 June 2006 (27.06.2006) US  
60/858,825 14 November 2006 (14.11.2006) US

(71) Applicant (for all designated States except US): **UNIVATION TECHNOLOGIES, LLC** [US/US]; 5555 San Felipe, Suite 1950, Houston, TX 77056-2746 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KOLB, Rainer** [DE/US]; 3411 Park Springs Lane, Kingwood, TX 77345 (US). **AGAPIOU, Agapios, K.** [US/US]; 19911 17th Green Court, Humble, TX 77346 (US). **FARLEY, James, M.** [US/US]; 123 McCarron Court, League City, TX 77573 (US). **MARKEL, Eric, J.** [US/US]; 4534 Natural Bridge Drive, Kingwood, TX 77345 (US). **SAVATSKY, Bruce, J.** [US/US]; 2303 Pine Blossom Court, Kingwood, TX 77345 (US). **DAVEY, Christopher, R.** [US/US]; 4119 Village Corner, Houston, TX 77059 (US). **PANNELL, Richard, B.** [US/US]; 3902 Hill Springs Drive, Kingwood, TX 77345 (US).

(74) Agents: **ARECHEDERRA, Leandro, III** et al.; Univation Technologies, LLC, 5555 San Felipe, Suite 1950, Houston, TX 77056-2746 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, 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
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
13 March 2008

(54) Title: IMPROVED POLYMERIZATION PROCESSES USING METALLOCENE CATALYSTS, THEIR POLYMER PRODUCTS AND END USES

(57) Abstract: A process for the production of an ethylene alpha-olefin copolymer is disclosed, the process including polymerizing ethylene and at least one alpha-olefin by contacting the ethylene and the at least one alpha-olefin with a metallocene catalyst in at least one gas phase reactor at a reactor pressure of from 0.7 to 70 bar and a reactor temperature of from 20°C to 150°C to form an ethylene alpha-olefin copolymer. The resulting ethylene alpha-olefin copolymer may have a density D of 0.927 g/cc or less, a melt index (I<sub>2</sub>) of from 0.1 to 100 dg/min, a MWD of from 1.5 to 5.0. The resulting ethylene alpha-olefin copolymer may also have a peak melting temperature T<sub>max</sub> second melt satisfying the following relation: T<sub>max</sub> second melt > D\*398 - 245.

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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2007/013231

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. C08F210/16

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)

C08F

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	US 2003/194575 A1 (TAU LI-MIN [US] ET AL) 16 October 2003 (2003-10-16) cited in the application claims; examples 1-5; tables 263-265 -----	16-36, 51-61
X	US 6 448 341 B1 (KOLTHAMMER BRIAN W S [US] ET AL) 10 September 2002 (2002-09-10) cited in the application claims; tables 4-6, 4a, 5a, 6a -----	16-36, 51-61
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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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\*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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\*G\* document member of the same patent family

Date of the actual completion of the international search

7 January 2008

Date of mailing of the international search report

16/01/2008

Name and mailing address of the ISA/

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

Authorized officer

Kaumann, Edgar

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International application No  
PCT/US2007/013231

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 2005/054791 A1 (NOWLIN THOMAS EDWARD [US] ET AL) 10 March 2005 (2005-03-10) cited in the application claims -----	1-61

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