



(51) International Patent Classification:

C23C 16/18 (2006.01) C07C 257/14 (2006.01)
C23C 16/40 (2006.01) C07F 17/00 (2006.01)

(21) International Application Number:

PCT/US2009/046443

(22) International Filing Date:

5 June 2009 (05.06.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/059,214 5 June 2008 (05.06.2008) US
12/479,175 5 June 2009 (05.06.2009) US

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(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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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))

(54) Title: PREPARATION OF LANTHANIDE-CONTAINING PRECURSORS AND DEPOSITION OF LANTHANIDE-CONTAINING FILMS

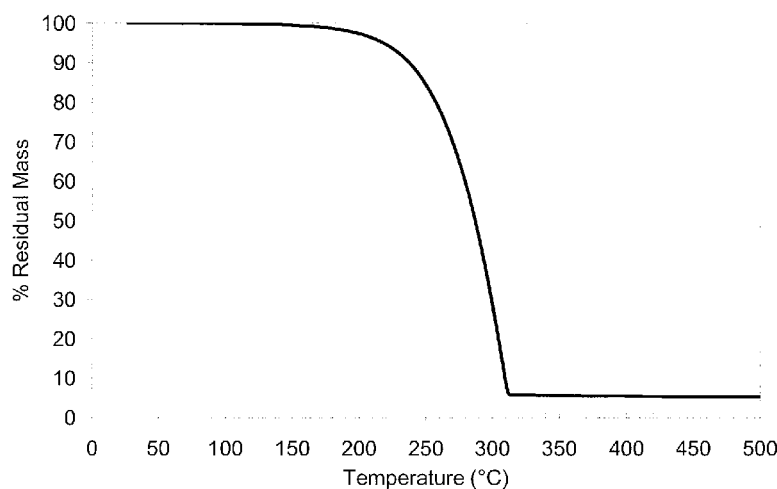


FIG. 9

(57) Abstract: Methods and compositions for depositing rare earth metal-containing layers are described herein. In general, the disclosed methods deposit the precursor compounds comprising rare earth-containing compounds using deposition methods such as chemical vapor deposition or atomic layer deposition. The disclosed precursor compounds include a cyclopentadienyl ligand having at least one aliphatic group as a substituent and an amidine ligand.