

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 January 2009 (22.01.2009)

PCT

(10) International Publication Number
WO 2009/010142 A3

(51) International Patent Classification:
C23C 18/12 (2006.01)

(21) International Application Number:
PCT/EP2008/004876

(22) International Filing Date: 17 June 2008 (17.06.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10 2007 033 172.1 17 July 2007 (17.07.2007) DE
10 2007 043 920.4
14 September 2007 (14.09.2007) DE

(71) Applicant (for all designated States except US): **MERCK PATENT GMBH** [DE/DE]; Frankfurter Strasse 250, 64293 Darmstadt (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KUEGLER, Ralf** [DE/DE]; Leuschnerstrasse 34, 67063 Ludwigshafen (DE). **SCHNEIDER, Joerg** [DE/DE]; Hainstrasse 15, 64342 Seeheim-Jugenheim (DE). **HOFFMANN, Rudolf** [DE/DE]; Hegelstrasse 2a, 64291 Darmstadt (DE).

(74) Common Representative: **MERCK PATENT GMBH**; Frankfurter Strasse 250, 64293 Darmstadt (DE).

(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, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, 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
- 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:
19 February 2009

(54) Title: ORGANOMETALLIC ZINC COMPOUND FOR PREPARING ZINC OXIDE FILMS

(57) Abstract: The invention relates to a printable precursor comprising an organometallic zinc complex which contains at least one ligand from the class of the oximates and is free from alkali metals and alkaline-earth metals, for electronic components and to a preparation process. The invention furthermore relates to corresponding printed electronic components, preferably field-effect transistors.



WO 2009/010142 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/004876

A. CLASSIFICATION OF SUBJECT MATTER

INV. C23C18/12

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)

C23C

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.
X	HILL M R ET AL: "Towards new precursors for ZnO thin films by single source CVD: the X-ray structures and precursor properties of zinc ketoacidoximates" INORGANICA CHIMICA ACTA, ELSEVIER BV, NL, vol. 358, no. 1, 1 January 2005 (2005-01-01), pages 201-206, XP004674604 ISSN: 0020-1693 cited in the application the whole document ----- -/-	1-14

☒ 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 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

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

11 December 2008

Date of mailing of the international search report

29/12/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Ramos Flores, Cruz

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/004876

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PETRELLA ET AL.: "Single-Source Chemical Vapor Deposition Growth of ZnO Thin Films Using Zn ₄₀ (CO ₂ NEt ₂) ₆ " CHEM. MATER., vol. 14, no. 10, 1 October 2002 (2002-10-01), pages 4339-4342, XP002507722 the whole document	1-14
X	WANG ET AL.: "Nanocrystalline ZnO with Ultraviolet Luminescence" J. PHYS. CHEM. B, vol. 110, no. 9, 4 February 2006 (2006-02-04), pages 4099-4104, XP002507723 the whole document	1-14