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(71) Applicant (for all designated States except US): **OSRAM SYLVANIA INC.** [US/US]; 100 Endicott St., Danvers, Massachusetts 01923 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FAN, Chen-wen** [US/US]; 126 Sharon Ave., Sayre, Pennsylvania 18840 (US). **DANG, Tuan** [US/US]; 86 Jacobs St., Sayre, Pennsylvania 18840 (US). **COVELESKIE, Joan** [US/US]; 214 Sandra Ave., Sayre, Pennsylvania 18840 (US). **SCHWAB, Frank** [US/US]; R.R.#3, Box 351, Towanda, Pennsylvania 18848 (US). **BENJAMIN, Dale** [US/US];

R.R.#2, Box 230, Athens, Pennsylvania 18810 (US). **SHEPPECK, David** [US/US]; 205 N. Pennsylvania Ave., Sayre, Pennsylvania 18840 (US).

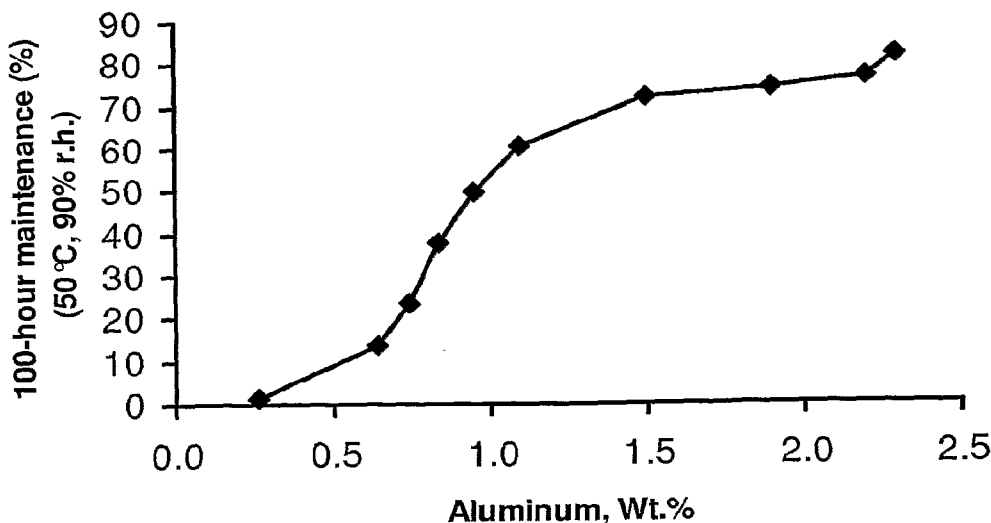
(74) Agent: **CLARK, Robert**; OSRAM SYLVANIA Inc., 100 Endicott St., Danvers, Massachusetts 01923 (US).

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[Continued on next page]

(54) Title: MOISTURE-RESISTANT ELECTROLUMINESCENT PHOSPHOR WITH HIGH INITIAL BRIGHTNESS AND METHOD OF MAKING



(57) Abstract: An electroluminescent (EL) phosphor is described wherein each individual phosphor particle is encapsulated in an inorganic coating, preferably aluminum oxyhydroxide. The encapsulated phosphor shows an extreme insensitivity to atmospheric moisture and suffers only minor loss of initial brightness in lamps. The method of applying the coating is a hybrid process, which involves EL phosphor particles first being coated with a thin inorganic film using an atomic layer deposition (ALD) method in a fluidized bed wherein the precursors are introduced sequentially in repeated cycles, subsequently followed by an additional coating layer applied by a chemical vapor deposition (CVD) method in which the precursors are introduced simultaneously.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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)

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 practicable, search terms used)
DWPI, JAPIO, ESPACE, USPTO, CAPLUS (ZnS, electrolumines+, phosphor, ALD, moisture)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 455 401 B2 (MINNESOTA MINING AND MANUFACTURING COMPANY) 17 July 1996 See entire document.	1-19
Y	US 5,080,928 A (KLINEDINST et al.) 14 January 1992 See entire document.	1-19
Y	US 5,220,243 A (KLINEDINST et al.) 15 June 1993 See entire document.	1-19
Y	US 6,743,475 B2 (SKARP et al.) 1 June 2004 See entire document.	1-19

 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	"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
"E"	earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2001/082390 A1 (EMAGIN CORPORATION) 1 November 2001 See entire document.	1-19
Y	US 2003/0172872 A1 (THAKUR et al.) 18 September 2003 See entire document.	1-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. These particulars are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
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		US	5418062	US	5439705	US	5593782
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END OF ANNEX