

Translation

PATENT COOPERATION TREATY

PCT/JP2003/016379



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PTGF-03105	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2003/016379	International filing date (day/month/year) 19 December 2003 (19.12.2003)	Priority date (day/month/year) 20 December 2002 (20.12.2002)
International Patent Classification (IPC) or national classification and IPC C09K 11/08, 11/66, 11/64, 11/62, H01L 33/00 // F21V 8/00, F21Y 101:02		
Applicant TOYODA GOSEI CO., LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:

- sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
- sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the report
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

Date of submission of the demand 30 January 2004 (30.01.2004)	Date of completion of this report 24 September 2004 (24.09.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2003/016379

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- The international application as originally filed/furnished
 - the description:
 - pages _____, as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - the claims:
 - pages _____, as originally filed/furnished
 - pages* _____, as amended (together with any statement) under Article 19
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - the drawings:
 - pages _____, as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. The amendments have resulted in the cancellation of:

- the description, pages _____
- the claims, Nos. _____
- the drawings, sheets/figs _____
- the sequence listing (*specify*): _____
- any table(s) related to sequence listing (*specify*): _____

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages _____
- the claims, Nos. _____
- the drawings, sheets/figs _____
- the sequence listing (*specify*): _____
- any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/JP 03/16379

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3-5, 9-10, 12-21	YES
	Claims	1, 2, 6-8, 11, 22	NO
Inventive step (IS)	Claims	3-5, 14-17	YES
	Claims	1, 2, 6-13, 18-22	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims		NO

2. Citations and explanations

Document 1: JP 2002-363555 A (Nantex Industry Co., Ltd.), 18 December 2002 (family document of US 2002/0180338 A1 cited in the international search report)

Document 2: JP 2002-363554 A (National Institute for Materials Science), 18 December 2002 (family document of EP 1264873 A2 cited in the international search report)

Document 3: JP 10-112557 A (Nichia Corporation), 28 April 1998

Document 4: JP 2002-171000 A (Sharp Corporation), 14 June 2002 (family document of US 2002/0063301 A1 cited in the international search report)

Document 5: JP 9-194833 A (Kasei Optonix, Ltd.), 29 July 1997 (family document of WO 97/27267 A1 cited in the international search report)

Documents 1 to 5 are documents cited in the international search report or family documents of said documents.

Documents 1 to 4

Document 1 (embodiments) sets forth a pink light-emitting device using a fluorescent substance having a

composition of (Y, Ce, Eu)Al₅O₁₂, and said fluorescent substance has a coactivator made from Ce as well as an activator Eu added thereto.

Document 2 sets forth a white diode having a blue LED as a light source, wherein a fluorescent substance has Re₂ substituted as a coactivator and has a lanthanide metal Re₁ substituted.

Document 3 indicates that a fluorescent substance, containing a coactivator selected from among Mn, Nb and Pr as well as an Eu activator, is used in LED displays and similar devices.

Document 4 sets forth a semiconductor light-emitting device using a fluorescent substance (claims 6 and 8) containing compositions of CaAl₂O₄: Eu, Nd or Sr₄Al₁₄O₂₅: Eu, Dy.

Documents 1 to 4 do not indicate that a coactivator improves the stability of light-emitting temperature, but the inventions set forth in these documents have the same composition as the invention set forth in claim 1 of this application, therefore the inventions set forth in documents 2 to 4 are acknowledged to have the same physical properties.

Therefore the inventions set forth in claims 1, 6 to 8, 11 and 22 lack novelty in the light of documents 1 to 4.

A person skilled in the art would be capable of applying the fluorescent substance set forth in documents 1 to 4 to an optical device having an appropriate structure as necessary.

Therefore the inventions set forth in claims 9, 10, 12, 13 and 18 to 21 do not involve an inventive step in the light of documents 1 to 4.

Document 5

Document 5 (embodiment 11) sets forth a fluorescent substance having a composition of

$\text{Sr}_{1.995}\text{MgSiO}_2\text{O}_7:\text{Eu}_{0.005}\text{Tm}_{0.025}\text{Br}_{0.025}$ (embodiment 11).

The aforementioned fluorescent substance is acknowledged to correspond to the empirical formula set forth in claim 2 of this application when $M' = \text{Sr}$, $a = 1.995$, $M'' = \text{Mg}$, $b = 1$, $z = 0$, $c = 2$, $d = 0$, $e = 0$, $X = \text{Br}$ and $R = \text{Tm}$.

Document 5 does not indicate that a coactivator improves the stability of light-emitting temperature, but the invention set forth in document 5 has the same composition as the invention set forth in claims 1 and 2 of this application, and is therefore acknowledged to have the same physical properties.

Therefore the invention set forth in claims 1 to 2 and 6 lacks novelty in the light of document 5.

In addition, a person skilled in the art would be capable of slightly changing the percentages of elements contained, in the light of the fluorescent substance set forth in document 5.

Therefore the invention set forth in claims 2 and 6 does not involve an inventive step in the light of document 5.