



(11) **EP 2 189 508 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
16.03.2011 Bulletin 2011/11

(51) Int Cl.:
C09K 11/06 (2006.01) H01L 51/50 (2006.01)

(43) Date of publication A2:
26.05.2010 Bulletin 2010/21

(21) Application number: **09157011.9**

(22) Date of filing: **31.03.2009**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK TR**
Designated Extension States:
AL BA RS

(30) Priority: **21.11.2008 KR 20080116521**

(71) Applicant: **Gracel Display Inc.
Seoul 133-833 (KR)**

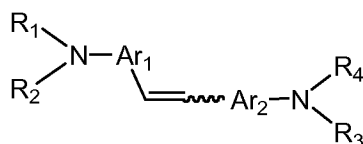
(72) Inventors:
• **Jung, Seyoung**
121-270, Seoul (KR)
• **Jeong, Eui Soo**
130-771, Seoul (KR)

- **Lee, Ho Joon**
Marlborough, MA 01752 (US)
- **Cho, Young Jun**
136-060, Seoul (KR)
- **Kwon, Hyuck Joo**
130-100, Seoul (KR)
- **Kim, Bong Ok**
135-090, Seoul (KR)
- **Kim, Sung Min**
157-886, Seoul (KR)
- **Yoon, Seung Soo**
135-884, Seoul (KR)

(74) Representative: **Buckley, Guy Julian**
Patent Outsourcing Limited
1 King Street
Bakewell
Derbyshire DE45 1DZ (GB)

(54) **Electroluminescent device using electroluminescent compounds**

(57) Provided is an electroluminescent device comprising an organic layer interposed between an anode and a cathode on a substrate, wherein the organic layer includes an electroluminescent layer containing one or more dopant compound(s) represented by Chemical Formula 1, and the dopant compound is a mixture of not less than 80% by weight and less than 100% by weight of the cis-form and more than 0% by weight and not more than 20% by weight of the trans-form:



(1)

wherein represents cis or trans configuration to the double bond.

The electroluminescent device, which includes a mixture of not less than 80% by weight and less than 100% by weight of a dopant having cis configuration and more than 0% by weight and not more than 20% by weight of the dopant having trans configuration, exhibits superior luminous efficiency, good color purity and excellent operation life.



EUROPEAN SEARCH REPORT

Application Number
EP 09 15 7011

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2006/147750 A1 (UJIIE YASU HARU [JP] ET AL) 6 July 2006 (2006-07-06) * claims 1-11; examples 1-5 * -----	1-10	INV. C09K11/06 H01L51/50
A	US 2008/091030 A1 (EGAWA MASAKAZU [JP] ET AL) 17 April 2008 (2008-04-17) * paragraph [0205] - paragraph [0254] * -----	1-10	
A	US 2008/241768 A1 (TAKAGI RYOKO [JP] ET AL) 2 October 2008 (2008-10-02) * paragraph [0064] * -----	1-10	
			TECHNICAL FIELDS SEARCHED (IPC)
			C09K
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 February 2011	Examiner Mehdaoui, Imed
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

1
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 15 7011

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-02-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006147750 A1	06-07-2006	KR 20060052312 A	19-05-2006
US 2008091030 A1	17-04-2008	KR 20080029921 A	03-04-2008
		US 2010301322 A1	02-12-2010
US 2008241768 A1	02-10-2008	CN 101282603 A	08-10-2008
		JP 4450006 B2	14-04-2010
		JP 2008257907 A	23-10-2008
		KR 20080090291 A	08-10-2008

专利名称(译)	使用电致发光化合物的电致发光器件		
公开(公告)号	EP2189508A3	公开(公告)日	2011-03-16
申请号	EP2009157011	申请日	2009-03-31
申请(专利权)人(译)	GRACEL显示增量.		
当前申请(专利权)人(译)	GRACEL显示增量.		
[标]发明人	JUNG SEYOUNG JEONG EUI SOO LEE HO JOON CHO YOUNG JUN KWON HYUCK JOO KIM BONG OK KIM SUNG MIN YOON SEUNG SOO		
发明人	JUNG, SEYOUNG JEONG, EUI SOO LEE, HO JOON CHO, YOUNG JUN KWON, HYUCK JOO KIM, BONG OK KIM, SUNG MIN YOON, SEUNG SOO		
IPC分类号	C09K11/06 H01L51/50		
CPC分类号	H05B33/14 C09K11/06 C09K2211/1007 C09K2211/1011 C09K2211/1014 H01L51/0058 H01L51/006 H01L51/5012 Y02E10/549 Y02P70/521		
优先权	1020080116521 2008-11-21 KR		
其他公开文献	EP2189508A2		
外部链接	Espacenet		

摘要(译)

提供一种电致发光器件，包括插入在基板上的阳极和阴极之间的有机层，其中所述有机层包括含有一种或多种由化学式1表示的掺杂剂化合物的电致发光层，并且所述掺杂剂化合物是混合物不小于80%重量且小于100%重量的顺式形式和大于0%重量且不大于20%重量的反式形式：其中代表顺式或反式构型为双键。该电致发光器件，其包括不小于80重量%且小于100重量%的具有顺式构型的掺杂剂和大于0重量%且不大于20重量%的具有反式构型的掺杂剂的混合物。 ，具有优异的发光效率，良好的色纯度和优异的使用寿命。

