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**Datasheet for the decision
of 4 July 2013**

Case Number: T 1979/10 - 3.3.09

Application Number: 04026734.6

Publication Number: 1530245

IPC: H01L 51/00

Language of the proceedings: EN

Title of invention:

Organic electroluminescent devices, organic solar cells,
organic fet structures and production method of organic
devices

Applicant:

Kido, Junji
ROHM CO., LTD.
Mitsubishi Heavy Industries, Ltd.

Headword:

-

Relevant legal provisions:

EPC Art. 123(2)

Keyword:

"Added subject-matter - no, after amendment"
"Remittal for further prosecution"

Decisions cited:

-

Catchword:

-



Case Number: T 1979/10 - 3.3.09

DECISION
of the Technical Board of Appeal 3.3.09
of 4 July 2013

Appellant:
(Applicant 1)

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Yonezawa-shi
Yamagata-ken (JP)

Appellant:
(Applicant 2)

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Appellant:
(Applicant 3)

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Representative:

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted 3 May 2010
refusing European patent application
No. 04026734.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: J. Jardón Álvarez
Members: W. Ehrenreich
K. Garnett

Summary of Facts and Submissions

I. This appeal lies from the decision of the examining division dated 3 May 2010, refusing European patent application No. 04 026 734.6.

II. The decision was based on a single claim, filed with letter dated 19 March 2010, and reading as follows:

"1. A process for the production of an organic device comprising the steps of:

preparing a glass substrate (50);

providing on the glass substrate (50) an in-situ thermal reduction reaction by contacting, through mixing by co-deposition, an organic metal complex compound containing at least one alkaline metal ion selected from ions of low work function metals having a work function of not more than 4.0 eV, and aluminum capable of reducing said alkaline metal ion contained in the organic metal complex compound in vacuum to the corresponding metal state;

subjecting the low work function metal produced upon this in-situ thermal reduction reaction and an electron-accepting organic compound to an oxidation-reduction reaction to form a charge transfer complex, thereby forming an electron transportation layer in which the electron-accepting organic compound is in the state of radical anions; and

contacting, through mixing by co-deposition, an organic compound having an ionization potential of less than 5.7 eV and an electron-donating property and an inorganic or organic substance containing at least one fluorine atom as a substituent and being capable of forming a charge transfer complex upon its oxidation-

reduction reaction with the electron-donating organic compound to form adjacent to the electron transportation layer a hole transportation layer in which the electron-donating organic compound is in the state of radical cations."

The examining division refused the application because in its opinion the subject-matter of the claim had no basis in the application as originally filed, contrary, to the requirements of Article 123(2) EPC. The examining division held that the combination of the technical features "alkaline metal", "aluminium", and "hole transport layer adjacent to the electron transport layer" extended beyond the content of the application as filed. The reason being essentially that the exact wording of the claim in the application as filed had not been used and that the features added to the claim were disclosed in the specification only for embodiments wherein specific compounds were used.

The examining division did not deal in its decision with other patentability issues.

III. On 12 July 2010 the joint applicant (in the following: the appellant) filed a notice of appeal, paying the appeal fee on the same day. The statement setting out the grounds of appeal was filed on 10 September 2010.

The appellant requested that the board set aside the contested decision and to refer the matter back to the examining division for grant on the basis of a newly filed claim 1.

- IV. On 17 January 2013 the board dispatched a summons to oral proceedings. In the annexed communication, the board gave its preliminary opinion on the case, namely that the amendments made included some alternatives which were no longer possible, contrary to Article 84 EPC, and that there was no support in the application as filed for the lamination of the embodiment claimed, contrary to Article 123(2) EPC. The board also noted that there was no example of the process as now claimed in the specification and that objections concerning lack of inventive step would probably arise.
- V. On 4 June 2013 the appellant filed an amended claim 1 in response to the communication of the board.
- VI. Oral proceedings were held before the board on 4 July 2013. During the oral proceedings the board informed the appellant that the objections under Articles 123(2) and 84 EPC raised in the communication still applied for the amended claim. As a reaction thereto the appellant filed a new request to replace the request previously on file.

The only claim of this request read as follows:

"1. A process for the production of an organic device comprising the steps of:

forming an electron transportation section by co-deposition of a lithium complex of (8-quinolinolato) containing a lithium ion and bathocuproine as a mixed layer and by vacuum depositing aluminum onto the mixed layer, wherein bathocuproine is in the state of radical anions in the electron transportation section;

contacting, through lamination or mixing by co-deposition, an organic compound having an ionization potential of less than 5.7 eV and an electron-donating property and an inorganic or organic substance capable of forming a charge transfer complex upon its oxidation-reduction reaction with the electron-donating organic compound to form adjacent to the electron transportation section a hole transportation section in which the electron-donating organic compound is in the state of radical cations."

- VII. The appellant in its written submissions and at the oral proceedings argued that amended claim 1 was limited to the first embodiment described on page 26, line 24, to page 30, line 22, of the application as filed, describing the electron transportation section in combination with page 34, line 23, to page 35, line 13, of the application as filed, describing the hole transportation section. The embodiment was further limited to the use of the specific compounds mentioned as preferred for such embodiment.
- VIII. The appellant requested that the decision under appeal be set aside and the case be remitted to the examining division for further examination on the basis of the single claim of the request filed during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments*
 - 2.1 Claim 1 is directed to a process for the production of an organic device having an electron transportation section and a hole transportation section as disclosed in claim 30 as originally filed. The specification as filed included four preferred embodiments directed to the preparation of such devices (see page 26, line 23, to page 35, line 13).
 - 2.2 Claim 1 has been limited to one of these four embodiments, namely the embodiment wherein the electron transportation section is formed according to the "first embodiment" described on page 26, line 24, to page 30, line 22.
 - 2.3 The formation of the electron transportation section requires the use of three reactants specifically disclosed for the first embodiment, namely, a lithium complex of (8-quinolinolato) as organic metal complex compound (support page 27, line 1), bathocuproine as organic electron-accepting compound (support page 28, line 3) and aluminium as thermally reducible metal (support page 28, lines 15 to 16).

The process steps are disclosed on page 28, line 14, for the formation of the mixed layer by co-deposition and on page 28, lines 15 to 17, for the vacuum-deposition of aluminium.

2.4 The formation of the hole transportation section is disclosed in the paragraph bridging pages 34 and 35. Support for the formation of the hole transportation section "adjacent" to the electron transportation section is found in the first sentence of the paragraph wherein it is stated that "the hole transportation section is formed adjacent to the electron transportation section described in the first to fourth embodiments".

2.5 The examining division did not allow the then pending claim 1 essentially because of an unallowable combination of technical features.

This objection no longer applies to present claim 1 in view of the amendments made to the claim, it now being limited to the specific disclosure of the first embodiment described in the specification as filed.

2.6 The board is satisfied that the subject-matter of claim 1 meets the requirements of Article 123(2) EPC.

2.7 Further, the amendments made to the claim also overcome the clarity objections raised by the board in its communication. The subject-matter of claim 1 also fulfils the requirements of Article 84 EPC.

3. *Remittal*

3.1 Since claim 1 now meets the requirements of Articles 84 and 123(2) EPC and non-compliance of the claimed subject-matter with Article 123(2) EPC was the sole reason for refusing the patent application relied on by the examining division, it appears appropriate, in

agreement with the appellant's request, to remit the case to the examining division for further substantive examination of the case.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the examining division for further examination on the basis of the single claim of the request filed during the oral proceedings.

The Registrar:

The Chairman:

M. Cañueto Carbajo

J. Jardón Álvarez