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**Datasheet for the decision
of 20 January 2014**

Case Number: T 1001/12 - 3.3.09

Application Number: 07867418.1

Publication Number: 2082446

IPC: H01L 51/00

Language of the proceedings: EN

Title of invention:
ORGANIC ELECTRONIC DEVICE

Applicant:
E.I. DU PONT DE NEMOURS AND COMPANY

Headword:
-

Relevant legal provisions:
EPC Art. 84, 111(1)

Keyword:
"Clarity - yes"
"Remittal for further prosecution"

Decisions cited:
-

Catchword:
-



Case Number: T 1001/12 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 20 January 2014

Appellant: E.I. DU PONT DE NEMOURS AND COMPANY
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted on 12 December
2011 refusing European patent application
No. 07867418.1 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: J. Jardón Álvarez
Members: W. Ehrenreich
R. Menapace

Summary of Facts and Submissions

I. This appeal lies from the decision of the examining division posted on 12 December 2011 refusing European patent application No. 07 867 418.1.

II. The decision was based on a main and two auxiliary requests, all filed on 3 October 2011. Claim 1 of the main request read as follows:

"1. An active layer comprising a dopant material and a host material, wherein said host material has an HPLC purity of at least 99.9% and an impurity absorbance no greater than 0.01,
characterised in that
said HPLC purity being the relative absorbance ratio of the host material peak to all other peaks integrated over the wavelength range of from 210-500 nm, as measured by HPLC, and
said impurity absorbance being the maximum absorbance in absorbance units of an at least 2 % wt/vol solution of the host material in tetrahydrofuran in the range of from 450-1000 nm, as measured using a Varian, Cary 50 UV-Vis spectrometer that has been blanked against a reference sample of neat tetrahydrofuran."

Claim 1 of the two auxiliary requests also defined the host material as having "an impurity absorbance no greater than 0.01".

III. The examining division refused all the requests for non-compliance with Article 84 EPC.

The examining division held that it was unclear how the skilled person would measure the impurity absorbance of the host material. It noted that the absorbance was a function of the path length, and as the path length was not indicated in the specification it was not clear to the skilled person how to carry out the measurement needed in order to determine the impurity absorbance. The skilled person was therefore unable to determine what fell under the scope of the claimed subject-matter.

The examining division cited in its decision the following document:

D5: "Absorbance", 29 September 2011, retrieved from the internet: URL:
<http://en.wikipedia.org/wiki/Absorbance> [retrieved on 2011-11-02]

The examining division did not deal with any other patentability issues.

IV. On 20 February 2012 the applicant (in the following: the appellant) filed a notice of appeal and on the same day paid the appeal fee. The statement setting out the grounds of appeal was filed on 23 April 2012.

With the statement of grounds of appeal the appellant filed an amended main request and five auxiliary requests. The appellant requested that the decision of the examining division be set aside and that the application be remitted to the examining division for further prosecution on the basis of the claims of the main request. The appellant also filed the following documents:

- E1: Definition of cuvette taken from Wikipedia (3 pages);
- E2: Printout of glass and quartz cuvettes from Nova Biotech (15 pages);
- E3: Indication of standard-sized cuvettes available from Cole-Parmer (4 pages);
- E4: Details of a cuvette holder available from Comecta (1 page);
- E5: Details of the Model CV-1 cuvette module available from C&L Instruments, Inc. (2 pages);
- E6: Details of a Peltier-based temperature-controlled cuvette holder available from Quantum Northwest (1 page);
- E7: Details of various cuvettes for spectrophotometry available from Jenway (2 pages); and
- E8: Declaration of Raymond Richardson dated 23 April 2012 (1 page).

V. The claims of the main request correspond to the claims before the examining division, but with the reference to the actual spectrometer used to measure the impurity absorbance having been deleted from claim 1. Claim 1 reads as follows:

"1. An active layer comprising a dopant material and a host material, wherein said host material has an HPLC

purity of at least 99.9% and an impurity absorbance no greater than 0.01,

characterised in that

said HPLC purity being the relative absorbance ratio of the host material peak to all other peaks integrated over the wavelength range of from 210-500 nm, as measured by HPLC, and

said impurity absorbance being the maximum absorbance in absorbance units of an at least 2 % wt/vol solution of the host material in tetrahydrofuran in the range of from 450-1000 nm."

VI. The relevant arguments presented by the appellant may be summarised as follows:

- The examining division had taken an overly analytical approach and had not taken the general knowledge of the relevant person skilled in the art into account. The skilled person would immediately know which method and conditions to use to measure the impurity absorbance. The appellant filed documents E1 to E8 to demonstrate that the person skilled in the art would know that the standard path length used to measure UV-Vis spectra was 1 cm.
- Further, the examining division had misinterpreted the intended meaning of the "impurity absorbance", its view of how the skilled person would interpret this parameter was incorrect.

VII. The appellant requests that the decision under appeal be set aside, and that the application be remitted to the examining division for further prosecution on the basis of claims 1 to 14 of the main request or,

alternatively, on the basis of the claims of auxiliary requests 1 to 5, all requests filed on 23 April 2012 with the statement setting out the grounds of appeal.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

2. *Amendments (Article 123(2) EPC)*

Claim 1 of the main request corresponds to claim 1 of the application as filed, with the further limitations that the HPLC purity and the impurity absorbance are as defined on page 3, line 33 to page 4, line 5 of the application as originally filed. It therefore complies with Article 123(2) EPC.

3. *Clarity*

- 3.1 The subject-matter of claim 1 relates to an active layer comprising a dopant material and a host material, the host material being defined by having:

- (i) an HPLC purity of at least 99.9%, the purity being the relative absorbance of the host material peak to all other peaks integrated over the wavelength range of from 210-500 nm, as measured by HPLC; and
- (ii) an impurity absorbance no greater than 0.01, the impurity absorbance being the maximum absorbance in absorbance units of an at least 2% wt/vol

solution of the host material in tetrahydrofuran in the range of from 450-1000 nm.

- 3.2 The examining division did not raise a clarity objection against feature (i), the purity being measured by high pressure liquid chromatography, and refused the application on the sole ground that in its view it was unclear how to measure feature (ii), the impurity absorbance of the host material.
- 3.3 As correctly indicated in the appealed decision, the absorbance is a quantitative measure expressed as a logarithmic ratio between the intensity of light at a specified wavelength that has passed through a sample and the intensity of the reference sample. Its value depends on the concentration and absorption coefficient of the substance and on the optical path length of the measured sample. The examining division concluded that it was not clear how to measure the impurity absorbance essentially because the optical path length used for the measurement was not specified.
- 3.4 The question to be answered in the present decision is whether or not the skilled person is taught by the specification of the patent in suit, or would already know from his general knowledge, how to determine the impurity absorbance of the host material, and in particular which conditions (path length) to use to measure it.
- 3.5 The appellant maintains that the skilled person would know that the absorbance should be measured using a cuvette having a 1 cm (10 mm) path length.

3.6 In view of the evidence filed by the appellant with its statement of grounds of appeal, the board is satisfied that this is indeed the case and that the skilled person would know that the impurity absorbance as defined in claim 1 should be measured using a 1 cm path length, this being -as explained below- the standard path length used when measuring UV-Vis spectra.

3.6.1 Samples for ultraviolet-visible spectroscopy are placed in a transparent cell, known as a "cuvette". Although such cuvettes are sold in different sizes, the documents filed by the appellant, namely the Wikipedia extract E1 and the product details available from several cuvette manufacturers, convincingly show that the standard size path length of the cuvettes is 1 cm.

3.6.2 Thus, E1, which provides a definition of the term "cuvette" taken from Wikipedia, indicates that "typically, cuvettes are 1 cm across, to allow for easy calculation of coefficients of absorption" (third paragraph, last sentence).

E3 indicates that the standard-sized cuvettes available from Cole-Parmer, with a path length of 10 mm (dimensions: 12.5 mm W x 49 mm H x 12.5 mm D), are the type most often used for routine laboratory testing (see page 1).

E4 offers cuvettes for spectroscopy and indicates that the "standard" size path length is 10 mm x 45 mm high while other path lengths are defined as "special" (see E4, paragraph headed "FEATURES").

Finally, E6 relating to a temperature-controlled cuvette holder available from Quantum Northwest refers to the "standard cuvette size" being 12.5 mm x 12.5 mm, implying a 10 mm optical path length.

- 3.6.3 The above-mentioned citations confirm the argument of the appellant that the person skilled in the art would know that the standard path length used to measure UV-visible spectra is 1 cm.
- 3.6.4 This is confirmed by the declaration of Mr Richardson, an employee of the appellant with over 30 years' experience in performing UV-Vis spectroscopy measurements. Mr Richardson states that when reading the specification of the patent he "would assume that a 1 cm path length is to be used in the measurement of the impurity absorbance, as this is the standard length when measuring UV-Vis spectra" (E8, point 5). The board has no reason to doubt the accuracy of this statement by a skilled person.
- 3.7 This finding is also indirectly corroborated by the information in the specification as filed when read by the skilled person. As indicated by the appellant, the purity of a host material covered by claim 1 was measured in Example 3 of the application (page 40, lines 4 to 15). Although in this example the path length is not specified, it is stated that the sample was prepared by dissolving the material to be analysed in 3 ml of THF and was measured against a blank sample containing 3.0 ml of pure THF. The skilled person reading this disclosure would have no doubt that a cuvette having a 1 cm path length was used, since standard cuvettes for UV-Vis spectroscopy with a 1 cm

path length will hold about 3 ml of sample, as indicated in paragraph 6 of Mr Richardson's declaration (E8; see also the cuvettes described in E3, E7 and E2).

3.8 For these reasons the board is satisfied that the skilled person would clearly know how to measure the impurity absorbance of the host material as required by claim 1 of the patent.

4. *Remittal*

4.1 For the above reasons, the ground for refusal on which the impugned decision is based has been overcome. Hence, the decision under appeal is to be set aside.

4.2 As other substantive requirements of the EPC have not yet been assessed, the board decides under Article 111(1) EPC to accede to the appellant's request that it remits the case to the examining division for further prosecution.

AUXILIARY REQUESTS

5. As the appellant's main request complies with Article 84 EPC, there is no need for the board to deal with the auxiliary requests.

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 prosecution on the basis of claims 1 to 14 of the main request filed on 23 April 2012.

The Registrar:

The Chairman:

M. Cañueto Carbajo

J. Jardón Álvarez