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Datasheet for the decision of 19 November 2013

Case Number: T 0103/10 - 3.4.02

Application Number: 96909447.3

Publication Number: 871858

IPC: G01N15/06, G01N21/49, // G01N33/26, G01N33/49

Language of the proceedings: EN

Title of invention:
METHOD AND APPARATUS FOR QUANTITATIVE PARTICLE DETERMINATION IN FLUIDS

Patent Proprietor:
DeLaval Holding AB

Opponent:
Octrooibureau Van der Lely N.V.

Relevant legal provisions:
EPC Art. 52(1)
EPC 1973 Art. 56
EPC 1973 R. 67
RPBA Art. 13(1)

Keyword:
Main and second auxiliary request - inventive step (no)
First auxiliary request - admissibility (no)
Third auxiliary request - novelty (no)
Reimbursement of appeal fee (no)

Decisions cited:
T 1054/00, T 0868/06, T 1374/06, T 1736/06, T 0412/09, T 0197/10, T 0553/11

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Case Number: T 0103/10 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 19 November 2013

Appellant: (Patent Proprietor)	DeLaval Holding AB Box 39 147 21 Tumba (SE)
Representative:	Lerwill, John A.A. Thornton & Co. 235 High Holborn London, WC1V 7LE (GB)
Respondent: (Opponent)	Octrooibureau Van der Lely N.V. Weverskade 110 3147 PA MAASSLUIS (NL)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 16 October 2009 revoking European patent No. 871858 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman: A. G. Klein
Members: F. J. Narganes-Quijano
B. Müller

Summary of Facts and Submissions

I. The appellant (patent proprietor) lodged an appeal against the decision of the opposition division revoking European patent No. 0871858 (based on European patent application No. 96909447.3).

The opposition filed by the respondent (opponent) was based, among other grounds for opposition, on the grounds for opposition of lack of novelty and lack of inventive step (Article 100 (a) EPC 1973).

The first-instance proceedings were based on the patent as granted and in its decision the opposition division referred to document

X1: "Flow cytometry: A practical approach" M. G. Ormerod; 2nd edition, IRL Oxford University Press, Oxford, 1994

and held *inter alia* that the subject-matter of claim 1 was novel but did not involve an inventive step in view of the disclosure of document X1 and the common general knowledge of the person skilled in the art. In the decision the opposition division referred in an *obiter dictum* to the following documents in support of the common general knowledge:

A2: DE-A-4309328
A3: EP-A-0529666
A4: EP-A-0633462.

II. With the statement setting out the grounds of appeal the appellant submitted sets of claims amended according to a first to a third auxiliary request.

In response to the statement of grounds of appeal the respondent (opponent) submitted, among other documents, the following document:

D16: US-A-4078863.

III. Oral proceedings were held on 19 November 2013.

During the oral proceedings the appellant filed an amended set of claims replacing the set of claims of the first auxiliary request.

The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted, as a main request, or maintained in amended form on the basis of the claims of the first auxiliary request filed during the oral proceedings or the second or third auxiliary requests, both filed with the statement of grounds of appeal. The appellant also requested the reimbursement of the appeal fee.

The respondent requested that the appeal be dismissed.

At the end of the oral proceedings the Board gave its decision.

IV. Claim 1 of the patent as granted reads as follows:

"Apparatus for monitoring a fluid that passes through a sample cell by quantitative determination of particles in the fluid, comprising:

an emitter set comprising one or more light emitters (2) in turn providing one or more sample light signals;

a detector set comprising one or more light detectors (4) sensitive to the output of the light emitters;

there being a plurality of light signal paths (3, 5) each extending between one of a plurality of respective light emitter (2) and light detector (4) pairs

the arrangement being such that sample light signals passing along the light signal paths between the emitter and detector sets are received by the detector set during an analysis of a fluid sample in the sample cell, the detector set providing output values to processing means (6) for evaluation in order to provide a value indicative of the particle content of the fluid sample,

characterised in that

the processing means (6) compares detector set output values for different light signal paths with reference values to discriminate a given type of particle from any other particles present in the fluid sample and determine the concentration thereof in the sample fluid."

Claim 1 amended according to the first auxiliary request differs from claim 1 as granted in that the second sub-paragraph of the claim relating to the emitter set is replaced by the following sub-paragraph:

"an emitter set comprising one or more light emitters (2) in turn providing one or more sample light signals wherein a light emitter comprises a light emitting diode (LED);"

and in that the claim further reads:

"wherein the sample fluid is milk or other dairy based fluid and said given type of particle is at least one of: fat, protein, lactose and somatic cell; and wherein the sample cell is arranged to allow a continuous flow of fluid therethrough."

Claim 1 of the second auxiliary request differs from claim 1 as granted in the insertion of the following wording immediately after the expression "characterised in that":

"the detector set is arranged to detect at least one set of scattered or reflected signals due to reflectance by particles present within the fluid in the sample cell, whereby the detector set output values are a function of the combination of each constituent particle's reflectance and absorption characteristics, and".

Claim 1 of the third auxiliary request differs from claim 1 of the second auxiliary request in that the claim further reads:

"and said processing means also compares, by either or both linear regression and Fourier transform analysis, output values produced by the detector set with stored calibration reference values, the comparison producing values indicative of the quantitative levels of different types of particles within a sample fluid."

Reasons for the Decision

1. The appeal is admissible.

2. *Main request - Novelty and inventive step*

2.1 Claim 1 of the patent as granted is directed to an apparatus for monitoring a fluid that passes through a sample cell by quantitative determination of particles in the fluid.

In its decision the opposition division held that the apparatus disclosed in chapter 1 of document X1 with reference to Figures 7 and 16 constituted the closest state of the art, and that the sole feature distinguishing the claimed apparatus from the apparatus disclosed in document X1 was the determination of the concentration of a given type of particles discriminated by the apparatus from the remaining particles present in the fluid sample.

2.2 The appellant has contested the opposition division's finding in this respect and has submitted that, unlike the apparatus disclosed in document X1 which relies on flow cytometry, the claimed apparatus does not pertain to flow cytometry and that this difference amounts to a further distinguishing feature of the claimed apparatus over the disclosure of document X1.

However, as submitted by the respondent, none of the structural and functional features of the apparatus defined in claim 1 excludes operation of the same by the flow cytometry technique disclosed in document X1.

First, as submitted by the appellant, the apparatus disclosed in document X1 operates according to flow cytometry, i.e. a measurement technique in which particles such as cells are sorted one-by-one and measurements are separately carried out on each of the

particles as they flow in a flow stream through a flow chamber (document X1, page 1, first paragraph together with Figure 7 and the corresponding description). According to claim 1, however, the purpose of the claimed apparatus is to monitor "a fluid that passes through a sample cell by quantitative determination of particles in the fluid", the determination being based on "sample light signals" received by the detector set "during an analysis of a fluid sample in the sample cell" and the detector set output values being processed so as to "discriminate a given type of particle from any other particles present in the fluid sample", and none of these features excludes the flow cytometry technique disclosed in document X1. In particular, contrary to the appellant's submissions, none of the claimed features restricts the claimed apparatus to the interrogation of particles at a macroscopic level or excludes techniques required by document X1 such as the preliminary preparation of the sample or shaping the sample cell so that each of the particles are detected and measured one-by-one as they pass through the sample cell.

Second, in the apparatus disclosed in document X1 light from a laser source is directed towards the flow chamber through which the fluid sample flows, and the light from the laser transmitted and reflectively scattered by the particles in the flow chamber is respectively detected by a "forward scatter detector" and a "right angle scatter detector" both sensitive to laser light from the laser source (Figure 7), thus defining two different light signal paths as required by the claimed subject-matter. Therefore, the apparatus disclosed in document X1 satisfies all the structural and functional features of the arrangement of the emitter set and the detector set defined in claim 1. It

also follows that the argument of the appellant according to which the light sources used in the invention are light emitting diodes and this feature excludes the use of a diffraction-limited, narrow laser light beam as required in flow cytometry is not convincing. Claim 1 only refers broadly to "light emitters" and to "light signals" and "light signal paths" and does not impose any specific requirement that would exclude the laser light sources and signals used in document X1.

Third, in the apparatus disclosed in document X1 the particles being measured are blood leucocytes and the output values from the forward and the right-angle scatter detectors and corresponding to different light signal paths are plotted in a cytogram and compared with reference values constituted by gates and windows in order to discriminate and identify the different types of leucocytes from each other (Figure 16 and the corresponding description, in particular page 21, second paragraph, lines 1 to 15) and determine the relative percentages of the types of leucocytes (lymphocytes, monocytes and granulocytes) in the sample fluid (page 21, second paragraph, lines 16 to 19). This disclosure of document X1 anticipates, with the possible exception of the determination of the concentration, all the claimed structural and functional features of the processing means defined in claim 1, and the Board is also unable to see in these claimed features any requirement or limitation that would exclude the flow cytometric technique disclosed in document X1. In particular, the appellant's argument that the reference values mentioned in claim 1 relate to the whole fluid and not to individual particles as it is the case in document X1 is not supported by the formulation of the claim.

Finally, the appellant has submitted that the skilled person reading the patent specification would not think about flow cytometry as falling within the detection and processing technique disclosed in the patent and that, in any case, the embodiments in the description exclude flow cytometry. However, according to Article 84 EPC 1973 "The claims should define the matter for which protection is sought" and especially in cases where - as in the present case - the claimed subject-matter, although possibly broad, is clear and free from inconsistencies to the skilled reader, there is no reason that would justify interpreting the claimed subject-matter in a way departing from its proper definition and/or as inherently including technical limitations that can only be found in the description (see for instance decisions T 1054/00, point 4.8 of the reasons, T 868/06, point 2.6.2, T 1374/06, point 4.1, T 1736/06, points 2.2 and 2.3, T 197/10, point 2.3, and T 553/11, point 2.3, and the decisions cited therein). Therefore, even if it were assumed that a skilled reader would interpret the whole description of the patent, or parts of it, as not pertaining to flow cytometry, this would not justify a restrictive construction of the claimed subject-matter as inherently excluding flow cytometry and therefore as including technical requirements and/or limitations to the matter for which protection is sought that are not reflected in the actual formulation of the claim.

On the other hand, according to document X1 the flow cytometric apparatus has been designed so that, once the different types of particles have been discriminated from each other and counted (Figure 16), the computer determines the relative percentages of the different types of particles. Contrary to the

respondent's submissions, there is no clear and unambiguous disclosure in document X1 that this determination is carried out with reference to a specific volume of sample fluid, and therefore, as submitted by the appellant and found by the opposition division in its decision, this determination of relative percentages of types of particles does not constitute a determination of the concentration of a type of particles in the sample fluid as required by the claimed subject-matter.

In view of the above considerations the Board concludes that, as held by the opposition division in its decision, the subject-matter of claim 1 as granted differs from the apparatus disclosed in document X1 only in that the processing means determines the concentration in the sample fluid of one type of particles that has been discriminated from the remaining particles in the fluid.

2.3 In its decision the opposition division held that the claimed determination of the concentration of one type of particle in the sample fluid merely constituted the determination of alternative characteristics of the sample fluid and that the person skilled in the technical field to which document X1 belongs, i.e. in the field of flow cytometry, would be aware from his common general knowledge that the calculation of the concentration of the different types of particles per unit volume of the sample fluid was routinely carried out in flow cytometry and would therefore consider the calculation of the concentrations of the particle types from the relative percentages of the same obtained in accordance with the disclosure of document X1.

The appellant for its part has formulated the problem solved by the claimed invention in terms of the determination of the concentration of particles of a given type in a fluid without having to perform measurements separately on each particle. This formulation of the problem relies on the assumption that the claimed invention excludes performing measurements separately on each particle and cannot be accepted by the Board because, as already concluded in point 2.2 above, the claimed subject-matter does not support such an assumption.

As regards the opposition division's assessment of inventive step, the appellant has disputed the common general knowledge of the skilled person alleged by the opposition division in its decision, and has submitted that the claimed invention provides accurate means adapted to combine the data so as to provide concentration values which represent additional information, and that there is no reason to modify the disclosure of document X1 so as to generate concentration values.

The respondent for its part has referred to documents A2, A3 and A4 cited by the opposition division in an *obiter dictum* of the decision under appeal as supporting evidence of the alleged common general knowledge, and the appellant has disputed the admissibility of the documents into the proceedings on the ground that the documents were not pertinent. However, in view of the content of the pertinent passages of these documents which were already brought to the knowledge of the parties by way of an *obiter dictum* in the decision under appeal and since the Board had already noted in the communication annexed to the summons to oral proceedings that the documents could be

admitted into the proceedings in view of their relevance for the issues to be decided, the Board decided during the oral proceedings to admit the documents into the proceedings.

Documents A2, A3 and A4 all pertain to the field of flow cytometry (document A2, title, document A3, abstract, and document A4, title) and each of these documents discloses the calculation of the concentration of a type of particles in the sample fluid as one of the main purposes of the respective flow cytometric technique (document A2, abstract and column 1, lines 8 to 23, document A3, abstract, and document A4, page 4, line 49 to page 5, line 4). As submitted by the appellant, these documents are patent documents, but this fact alone is not sufficient to disregard the documents as evidence of common general knowledge. Indeed, as already held by the present Board (in a different composition) in decision T 412/09 (cf. point 2.1.3 of the reasons), a series of patent documents can be used as *prima facie* evidence that a predetermined technical procedure constituted common general knowledge at the relevant date, especially when the documents provide a consistent picture that the mentioned procedure was generally known and constituted a common practice in the art at that time, and the mere submission that patents cannot be used in establishing common general knowledge is insufficient to rebut or displace such evidence. In addition, document A2, in its introductory part, contains a general introduction to flow cytometry (column 1, line 8 *et seq*.) and in the first sentence of this introduction it is acknowledged that flow cytometry is used in the determination of the concentration of blood cells in clinical diagnostics (column 1, lines 8 to 10); this introductory part of the document is independent of the remaining disclosure

of the document specifically made for patent purposes and constitutes *per se* evidence of the common general knowledge in the field of flow cytometry at the publication date of the document.

Documents A2, A3 and A4, and in particular the introductory part of document A2 referred to above, show that the determination of the concentration of the types of particles in the fluid was not only common in flow cytometry at the priority date of the patent, but constituted one of the main purposes of this measurement technique, especially when the fluid being analysed was blood, i.e. the same fluid analysed in document X1 where the different types of blood cells (lymphocytes, monocytes and granulocytes) are discriminated from each other and counted. In addition, the Board considers that, as submitted by the respondent, counting the different types of leucocytes in a blood sample as in document X1 only makes sense in practice with respect to a predetermined volume of the sample. In view of these considerations, the Board concluded that the determination of the concentration of the different types of particles on the basis of the counting of particles of the different types and/or the determination of the relative proportion of particle types performed in document X1 constituted an obvious technical measure at the relevant date of the contested patent.

2.4 In the light of the foregoing, the Board concluded during the oral proceedings that the subject-matter of claim 1 as granted did not involve an inventive step over the disclosure of document X1 in view of the common general knowledge of the person skilled in the art (Articles 100(a) and 56 EPC 1973).

3. *First auxiliary request – Admissibility*

3.1 During the oral proceedings the appellant replaced the set of claims of the first auxiliary request filed with the statement of grounds of appeal by an amended set of claims (cf. point IV above). The appellant submitted that the amended claim 1 resulted from the combination of claim 1 as granted with features taken from dependent claims 5, 8, 15, and 16 as granted and was therefore clearly supported, and that the amendments intended to exclude the use of the flow cytometric techniques disclosed in document X1 and were justified in view of the behaviour of the respondent who filed new documents in reply to the statement of grounds of appeal and a new document just the day before the oral proceedings.

The respondent for its part requested that the amended set of claims not be admitted on the grounds that it was late filed and *prima facie* not allowable.

3.2 The Board first notes that the amended claim 1 incorporates features from dependent claims as granted, but that the amendments involve disparate features taken not only from dependent claims that refer back to the apparatus of claim 1 as granted (i.e. dependent claim 5 specifying a light emitting diode as light emitter and dependent claim 8 specifying the arrangement of the sample cell to allow a continuous flow of fluid), but also from dependent claims as granted directed to a method of monitoring a fluid passing through a sample cell (i.e. dependent claim 15 specifying a fluid consisting, among other alternatives, of milk or other dairy based fluid, and dependent claim 16 specifying that the particles are at least one of fat, protein, lactose and somatic cells).

In addition, the incorporation of these features into claim 1 gave rise to a number of questions as to how the resulting amended subject-matter was to be construed in the context of the claimed invention. In particular, the question arose as to whether the feature "wherein a light emitter comprises a light emitting diode" was to be construed as requiring that only one or each of the "one or more light emitters" was constituted by a light emitting diode, and as to what structural and functional features of the claimed apparatus were actually implied by the requirement that the apparatus was for use with particle types among the disparate alternatives "fat, protein, lactose and somatic cell" and with a fluid sample constituted by "milk or other dairy based fluid" - as opposed, for instance, to the fluid sample being constituted by blood also listed in the alternatives of dependent claim 15 as granted. It was therefore immediately clear during the oral proceedings that the number and the technical nature of the features introduced into claim 1 and the alternatives defined by the same would have led to complex and lengthy discussions during the oral proceedings on how the amended claimed subject-matter was to be construed in its technical context. The nature of the open questions referred to above also indicated that it was not *prima facie* apparent that the amendments did fulfil their intended purpose, i.e. to exclude construing the claimed subject-matter as encompassing the cytometric technique disclosed in document X1.

In addition, the Board saw no justification for the late filing of the amended first auxiliary request during the oral proceedings. The previous first auxiliary request filed with the statement of grounds of appeal was already objected to immediately by the

respondent in its letter of reply on the ground that the corresponding claim 1 contained a disclaimer directed to excluding flow cytometry and that this disclaimer was not allowable in view of decision G 1/03 (OJ EPO 2004, 483), and in the communication annexed to the summons to oral proceedings the Board already underlined the possible pertinence of the objection raised by the respondent. If the intention of the appellant when replacing the previous first auxiliary request by an amended version was to overcome this objection - as it appears to be the case in view of the amended version of claim 1 which contains no disclaimer -, then the amended claim request could already have been filed after the respondent's reply to the statement of grounds of appeal, or immediately after the receipt of the summons to oral proceedings as a reaction to the Board's preliminary comments. Furthermore, the fact that the respondent filed a series of new documents in reply to the statement of grounds of appeal cannot justify the filing of the amended first auxiliary request during the oral proceedings because such a request, if amended in response to these documents, could have been filed much earlier during the proceedings. Finally, the filing by the respondent of a document just the day before the oral proceedings cannot, in the Board's view, justify the filing of the amended request during the oral proceedings because no manifest causal link was apparent between the filing of the document and the nature of the amendments made to the first auxiliary request and, in any case, consideration of the amended request should then have been subordinated to the Board finding the document admissible - which did not happen.

3.3 Since admittance of the request would have led to complex and lengthy discussions that would ultimately

have resulted in a considerable delay of the procedure, and in the absence of special circumstances that would have justified the filing of the amended request during the oral proceedings, the Board decided during the oral proceedings not to admit the amended set of claims of the first auxiliary request into the proceedings pursuant to Article 13(1) RPBA (Rules of Procedure of the Boards of Appeal, OJ EPO 2007, 536).

4. *Second auxiliary request - Inventive step*

4.1 Claim 1 of the second auxiliary request requires, in addition to the features of claim 1 as granted, that the detector set is arranged as specified in dependent claim 2 as granted, i.e. arranged to detect at least one set of scattered or reflected light signals due to reflectance by particles present within the fluid in the sample cell. In document X1 the right angle scatter detector detects light emitted by the light source and reflectively scattered by the particles at an angle of 90° with respect to the direction of incidence of the light source on the particles (see Figure 7), the light reflectively scattered by the particles being intrinsically a function of the reflectance of the particles. The additional claimed feature referred to above is therefore anticipated by the disclosure of document X1.

Claim 1 as amended further requires that "the detector set output values are a function of the combination of each constituent particle's reflectance and absorption characteristics", this feature being supported, as submitted by the appellant, by the passage in paragraph [0027] of the patent specification.

In document X1 the forward scatter detector represented in Figure 7 sequentially generates a series of output values that depends on the characteristics of the particles being analyzed one-by-one, and in particular on the absorption characteristics of the same. Likewise, the right-angle scatter detector sequentially generates a series of output values that depends on the characteristics of the particles being analyzed one-by-one, and in particular on the reflectance characteristics of the same. Accordingly, the output values from the detector set of document X1 constitute detector set output values within the meaning of the amended claimed feature, these values being a function of the reflectance and absorption characteristics of each constituent particle of the fluid and also a function of the combination of the same since, as it is apparent from the cytogram represented in Figure 16 in which the detectors values are plotted in a two-dimensional representation, the set of output values from the two detectors carries information on the combination of the reflectance and absorption characteristics of the particles, and therefore can be said to depend on the combination of these characteristics. The appellant's argument that the feature under consideration excludes the flow cytometric technique disclosed in document X1 because according to the feature it is each of the individual output values of each of the detectors that simultaneously carries information on, and therefore is a function of, the combination of the reflectance and absorption characteristics of the particles cannot be followed because the actual formulation of the feature does not justify construing the feature in the narrow, restrictive manner submitted by the appellant and, in any case, in document X1 the laser light incident on each particle is partially reflected, partially

transmitted and partially absorbed by the particle, so that each of the detector signals can be said to be a function of the reflectance, the transmissivity and the absorption characteristics of a respective one of the particles and therefore a function of the combination of the mentioned characteristics.

4.2 The Board concludes that the additional features of the amended claim 1 do not amount to further distinguishing features over the disclosure of document X1 and that, consequently, the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step over document X1 for the same reasons as those given in point 2 above with regard to claim 1 of the patent as granted (Article 56 EPC 1973).

5. *Third auxiliary request - Novelty*

5.1 Document D16 was immediately filed by the respondent with its reply to the statement of grounds of appeal in reaction to the filing of amended claim requests, and in particular in reaction to the amended claim 1 of the third auxiliary request.

In view of the fact that the appellant has presented for the first time with the statement of grounds of appeal amended claim requests, and since claim 1 of the third auxiliary request has been extensively amended not only by incorporation of features defined in dependent claims 2, 7 and 13 as granted but also of features from the description (see the features referred to in the second paragraph of point 4.1 above and also contained in claim 1 of the third auxiliary request), the Board concluded during the oral proceedings that document D16 was to be admitted into the proceedings because, as contrarily held by the

appellant, the filing of document D16 constituted a timely, legitimate reaction from the part of the respondent to the filing with the statement of grounds of appeal of the amended set of claims of the third auxiliary request and, in addition, the appellant has had due opportunity to deal with the content of the document - as it actually did in detail in its reply dated 10 October 2011.

The appellant requested the remittal of the case to the opposition division in the event that document D16 was admitted into the proceedings. In view of the specific circumstances noted above, and in particular in view of the fact that the parties had had due opportunity to comment on the document which was filed in reaction to amendments to the patent submitted by the appellant for the first time during appeal proceedings following revocation of the patent as granted, and also in view of the general interest that the proceedings relating to the present case (pertaining to a patent having the filing date of 1 April 1996) be brought to a close within an appropriate period of time, the Board did not consider it appropriate in the circumstances of the case to allow the appellant's request for remittal of the case to the opposition division (Article 111(1) EPC 1973).

5.2 Document D16 discloses an apparatus for measuring the concentration of particles of different geometrical size suspended in a liquid (abstract and column 3, lines 29 to 35 together with Figure 1 and the corresponding description, in particular column 4, line 51 to column 5, line 59). The liquid is illuminated by a light source as the liquid flows in a pipe, and the light spread by the particles in two directions different from that of the light incident on the pipe

is detected by two detectors (abstract and Figure 1). The signal Uf generated by one of the detectors and representative of the light incident on the detector in excess of a predetermined intensity level corresponding to an adjustable discriminator level (abstract and column 4, line 63 to column 5, line 10) and the signal Ug generated by the other one of the detectors and representing the level of light intensity incident on the detector (abstract and column 5, lines 21 to 32) are processed so as to obtain a signal PF representative of the concentration of particles in excess of a predetermined geometrical size and a signal FF representative of the concentration of particles below the predetermined size (abstract, last sentence together with column 4, line 52 to column 5, line 59, in particular column 5, lines 57 to 59). According to the document, the processing of the detector signals involves a mathematical approach in which the two signals Uf and Ug are assumed to be a linear combination of the concentration signals PF and FF, i.e. Uf = (a PF + b FF) and Ug = (c PF + d FF) (column 5, lines 13 and 34), where the coefficients a, b, c and d are determined by calibration (column 5, lines 15 to 18 and 36 to 38).

It follows that, as submitted by the respondent,

- the light source and the two detectors define a plurality of light signal paths as required by the claimed subject-matter,

- the light detected by the detectors is light reflectively scattered by the particles in the fluid sample as required by the claimed subject-matter,

- the processed signals are a function of the combination of the reflectance and absorption characteristics of the particles as required by the claimed subject-matter,

- the generation and processing of only the signal Uf representing the light incident on one of the detectors in excess of a predetermined intensity level corresponding to an adjustable discriminator level constitutes a first comparison of the signals with reference values as required by the claimed subject-matter, and

- the evaluation of the signals Uf and Ug by decomposition of the same as a linear combination involving the calibration coefficients a, b, c, and d constitutes a second comparison with stored calibration reference values a, b, c and d, and results in signals PF and FF indicative of the concentration of the different types of particles as required by the claimed subject-matter.

It also follows from the above discussion that the apparatus of document D16 discriminates from each other the particles having a geometrical size above a predetermined value and the particles having a size below the predetermined value (abstract, last sentence together with column 4, line 52 to column 5, line 59, in particular column 5, lines 57 to 59) and therefore, contrary to the appellant's submissions, the apparatus discriminates a given type of particles from the remaining particles present in the fluid sample as required by the claimed subject-matter.

In addition, as submitted by the respondent and undisputed by the appellant during the oral proceedings, the approach consisting in the determination of the concentration signals Pf and FF on the basis of a decomposition of the signals Uf and Ug as a linear combination of Pf and FF with coefficients a, b, c and d falls within the category of analytical techniques known in mathematics as linear regression.

5.3 In view of the disclosure of document D16 and the submissions of the parties, the Board concluded during the oral proceedings that the subject-matter of claim 1 of the third auxiliary request relating to the alternative involving linear regression was not new with regard to the disclosure of document D16 (Article 52(1) EPC).

As regards the alternative of claim 1 involving Fourier transform analysis, the Board already noted during the oral proceedings that no contribution to inventive step could be seen in the use of Fourier transform analysis instead of linear regression. This finding is based on the fact that Fourier transform analysis only designates a mathematical tool commonly used in signal processing in a variety of different analytical methods and that the patent specification is silent as to any specific analytical method involving the use of Fourier transform analysis and as to any particular technical effect associated with the use of the same.

6. It follows from the conclusions in points 2 to 5 above that none of the requests of the appellant results in an admissible claim request that could be allowed. Accordingly, the Board decided during the oral proceedings that the appeal was to be dismissed.

7. *Request for reimbursement of the appeal fee*

With the statement of grounds of appeal the appellant requested reimbursement of the appeal fee by reason of a substantial procedural violation allegedly committed by the opposition division.

Rule 67 EPC 1973 prescribes that reimbursement of the appeal fee shall be ordered where the Board deems an appeal allowable if such reimbursement is equitable by reason of a substantial procedural violation. Since the present appeal is not allowed, an essential precondition for the reimbursement of the appeal fee is not fulfilled and consequently the request for reimbursement of the appeal fee cannot be allowed either. In these circumstances, the question of whether or not there was a substantial procedural violation in the first-instance proceedings as argued by the appellant need not be decided by the Board.

Order

For these reasons it is decided that:

1. The appeal is dismissed.

2. The request for reimbursement of the appeal fee is refused.

The Registrar: The Chairman:

M. Kiehl A. G. Klein

Decision electronically authenticated