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**Datasheet for the decision
of 5 October 2023**

Case Number: T 0345/21 - 3.2.05

Application Number: 11738215.0

Publication Number: 2737379

IPC: F17D3/01, G05D11/13

Language of the proceedings: EN

Title of invention:

Packet-wise proportioning followed by immediate longitudinal mixing

Patent Proprietor:

Agilent Technologies, Inc.

Relevant legal provisions:

EPC Art. 54(1), 111(1)
RPBA 2020 Art. 11, 12(2)

Keyword:

Prohibition of reformatio in peius
Novelty (yes)
Remittal (yes)

Decisions cited:

G 0009/92, T 0856/92, T 0498/03, T 1988/07, T 1843/09,
T 1626/11



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Case Number: T 0345/21 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 5 October 2023

Appellant: Agilent Technologies, Inc.
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Representative: Dilg, Haeusler, Schindelmann
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
2 February 2021 concerning maintenance of the
European Patent No. 2737379 in amended form.**

Composition of the Board:

Chairman P. Lanz
Members: T. Vermeulen
S. Fernández de Córdoba

Summary of Facts and Submissions

- I. The patent proprietor lodged an appeal against the interlocutory decision of the opposition division finding that European patent No. 2 737 379 as amended according to auxiliary request 1A met the requirements of the European Patent Convention.
- II. The opposition was filed against the patent as a whole on the basis of the grounds for opposition under Article 100(a) together with Article 54(1) EPC (lack of novelty) and Article 56 EPC (lack of inventive step), under Article 100(b) EPC and under Article 100(c) EPC.
- III. During the oral proceedings held before the opposition division, the sole opponent withdrew its opposition against the patent. The opposition division then continued the proceedings of its own motion in accordance with Rule 84(2) EPC.
- IV. In the contested decision, the opposition division came to the conclusion that the ground for opposition under Article 100(c) EPC prejudiced the maintenance of the patent as granted, that the subject-matter of claim 1 according to auxiliary request 1 filed with letter dated 13 November 2020 was not novel over document

SP06: "Praxis der Hochleistungs-
Flüssigchromatographie", Veronika R. Meyer,
Ninth edition, 2004, Wiley-VCH Verlag,
pages VI-X, 8-9, 54-57 and 63-66,

and that the subject-matter of claim 3 of auxiliary request 1 did not involve an inventive step starting from document SP06.

- V. With the statement of grounds of appeal the patent proprietor filed amended claims according to first to third auxiliary requests, as well as a schematic drawing as Annex A.
- VI. Oral proceedings before the board were held on 5 October 2023. During the oral proceedings, the appellant withdrew its main request (directed to the maintenance of the patent as granted) and its first auxiliary request, and filed a further schematic drawing as Annex B.
- VII. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of the claims of one of the second or third auxiliary requests filed with the statement of grounds of appeal.
- VIII. Claim 1 of the second auxiliary request (with the feature numbering used by the board in square brackets) and claim 12 of the second auxiliary request have the following wording:

"1.[F1] A fluid supply system (150) adapted for metering two or more fluids in defined proportions and for supplying a resultant mixture, the fluid supply system (150) comprising: [F1.1] a plurality of solvent supply lines (104 to 107), each fluidically connected with a fluid source (100 to 103) providing a respective fluid; [F1.2] a pumping unit (110) comprising a reciprocating element (115) adapted for intaking fluid supplied at an inlet of the pumping unit (110) and for

supplying the pressurized fluid at an outlet of the pumping unit (110), [F1.2.1] wherein the pumping unit (110) is adapted for taking in fluids in defined proportions from selected solvent supply lines (104 to 107) and for supplying a pressurized mixture of the fluids at its outlet; [F1.3] a proportioning valve (108) interposed between the solvent supply lines (104 to 107) and the inlet of the pumping unit (110), the proportioning valve (108) adapted for modulating solvent composition by sequentially coupling selected ones of the solvent supply lines (104 to 107) with the inlet of the pumping unit (110) in the course of the fluid intake phase of the pumping unit (110); characterized in that: [F1.4] a longitudinal mixing unit (152) is adapted for mixing longitudinally subsequent sections of the fluids so as to modify their succession in flow direction, [F1.4.1] wherein the longitudinal mixing unit (152) is placed between the proportioning valve (108) and the pumping unit (110)."

"12. A method of metering two or more fluids in controlled proportions and of supplying a resultant mixture, the method comprising:
fluidically connecting a plurality of solvent supply lines (104 to 107) with a fluid source (100 to 103) providing a respective fluid;
controlling a pumping unit (110) comprising a reciprocating element (115) for intaking fluid supplied at an inlet of the pumping unit (110) and for supplying the pressurized fluid at an outlet of the pumping unit (110), wherein the pumping unit (110) takes in fluids from selected solvent supply lines (104 to 107) and supplies a pressurized mixture of the fluids at its outlet;
modulating solvent composition using a proportioning valve (108) interposed between the solvent supply lines

(104 to 107) and the inlet of the pumping unit (110), wherein the proportioning valve (108) sequentially couples selected ones of the solvent supply lines (104 to 107) with the inlet of the pumping unit (110); characterized in that :
mixing longitudinally subsequent sections of the fluids so as to modify their succession in flow direction, wherein the longitudinal mixing unit (152) is placed between the proportioning valve (108) and the pumping unit (110)."

IX. The appellant's submissions may be summarised as follows.

Second auxiliary request - novelty of the subject-matter of claims 1 and 12

The novelty objection in point 4 of the reasons for the decision under appeal was not convincing. It was the result of an unduly broad claim construction in relation to document SP06, in particular in terms of the characterising feature **F1.4** of claim 1. Already from feature **F1** of claim 1 a skilled person would understand that a succession of distinguishable fluids before mixing was mandatory. This conclusion was in full agreement with the other features of claim 1, in particular feature **F1.1** and **F1.3**. Furthermore, paragraphs [0028], [0029] and [0099] of the patent in suit indicated that the longitudinal mixing unit of claim 1 required a modified succession of longitudinal subsequent sections of the fluids after mixing. Reference was also made to paragraph [0038] in which it was explained that the longitudinal mixing might be performed to redistribute parts of individual fluid packets, for instance forcing parts of a certain fluid packet having a certain density and viscosity to

overtake parts of another fluid packet having another density and/or viscosity. Figure 2 schematically illustrated a change in the order of sequence of fluid packets. Annex A visualized how a deterministic pattern of distinguishable fluid sections of two solvents still existed after their succession was modified in a longitudinal mixing unit. The wording of claim 1 did not cover the alternative of paragraph [0028] in which the mixing unit was intended to promote an interaction between fluid portions to enhance homogeneity.

Document SP06 disclosed in section 4.3 and in Figure 4.2 a low pressure gradient system with two or more containers including solvents with different elution force. The containers were connected with a pump via a switching valve and a magnet mixer having a volume less than 1 ml. The ports of the switching valve were opened for a different time period. The teaching of a piston pump in section 3.2 of document SP06 related to a different embodiment. The embodiment of section 4.3 failed to disclose a pumping unit comprising a reciprocating element as required by feature **F1.2**.

Document SP06 also failed to disclose feature **F1.4**. Only a magnetic mixer was disclosed in the context of section 4.3. Such a mixer created a homogenised blend of the supplied solvents. It did not mix longitudinally subsequent fluid sections in a way that their succession in flow direction was modified.

Thus, the subject-matter of claims 1 and 12 of the second auxiliary request was novel over document SP06.

Remittal to the opposition division

It was considered appropriate to remit the case to the opposition division.

Reasons for the Decision

Second auxiliary request - prohibition of reformatio in peius

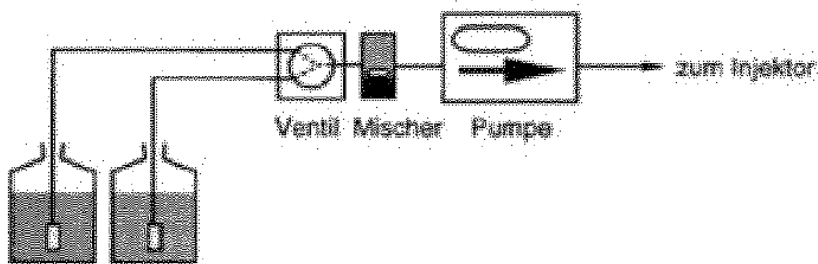
1. Since the patent proprietor is the sole appellant in the present case, the maintenance of the patent on the basis of claims that are identical in wording to those of auxiliary request 1A, which the opposition division had found to comply with the EPC, may in principle not be challenged. Otherwise the sole appellant would be put in a worse situation than if it had not filed an appeal. This follows from the prohibition of *reformatio in peius*, as established in the decision of the Enlarged Board of Appeal G 9/92 (point 1 of the headnote). See also decisions T 856/92 (Reasons 2), T 498/03 (Reasons 1), and T 1626/11 (Reasons 1.1).
2. The claims of the second auxiliary request filed with the statement of grounds of appeal correspond to those of auxiliary request 4 filed with letter dated 13 November 2020 before the opposition division. Auxiliary request 4 was not considered by the opposition division since it found that the patent as amended with the higher-ranking auxiliary request 1A met the requirements of the EPC.
3. The second auxiliary request includes a total of four independent claims: claims 1, 2, 3 and 12. Independent claims 2 and 3 are identical to claims 1 and 2 of auxiliary request 1A on the basis of which the

opposition division intended to maintain the patent. Furthermore, dependent claims 4, 5, 6, 8 and 9 correspond to dependent claims 3 to 7 of auxiliary request 1A, at least insofar as they depend on claims 2 or 3 of the second auxiliary request.

4. Hence, the board can in principle not examine or object to independent claims 2 and 3 of the second auxiliary request without contravening the principle of prohibition of *reformatio in peius*. The same applies to dependent claims 4 to 6, 8 and 9 of the second auxiliary request, at least insofar as they depend on independent claims 2 or 3.

Second auxiliary request - novelty of the subject-matter of claims 1 and 12

5. Claim 1 of the second auxiliary request is identical to claim 1 of auxiliary request 1 underlying the contested decision. With regard to the subject-matter of that claim, the opposition division concluded that it lacked novelty over document SP06 (Reasons 4 for the decision under appeal). In particular, it was held that the embodiment of the low pressure gradient system ("Niederdruck-Gradientensystem") as shown in Figure 4.2 on page 65 of document SP06 and reproduced below discloses all features of claim 1.



6. The appellant took issue with the opposition division's conclusion and argued that features **F1.2** and **F1.4** were not known from document SP06 in combination with the other features of claim 1.

(a) Document SP06

7. Document SP06 is a collection of excerpts from a textbook on practical aspects of High-Performance Liquid Chromatography (HPLC). Apart from the title page, the copyright page, a dedication page and the table of contents (pages VI to X), the excerpts cover a passage taken from the introductory chapter (pages 8 and 9), a passage corresponding to the first four pages of the third chapter entitled "Pumpen" (pages 54 to 57) and a passage taken from the fourth chapter entitled "Bereitstellung der Apparatur bis zur Probenaufgabe" (pages 63 to 66).

(b) Feature F1.2 - pumping unit

8. The low pressure gradient system reproduced above is disclosed in the last passage of document SP06, more specifically in section 4.3 "Gradientensysteme" of the fourth chapter. It discloses a mixing unit placed between a proportioning valve and a pumping unit. In the description of the figure on page 65, nothing is said about the type of pump used in the low pressure gradient system.
9. Details of pumps used in HPLC systems can be found in the third chapter of the textbook. Section 3.2 on page 55 of document SP06 starts off with the statement that the large majority of HPLC pumps belong to the short stroke piston pump type ("Die weitaus meisten HPLC-Pumpen gehören zum Typ der Kurzhubkolbenpumpe").

Essentially, piston pumps comprise a reciprocating piston. It is against this background that the opposition division held that "the features of the exemplary pumping systems provided in section 3.2 are directly and unambiguously disclosed in combination with the *Niederdruck-Gradientensystem* of section 4.3" (Reasons 4.5 of the decision under appeal).

10. The opposition division's view on feature **F1.2** seems to be based on the false premise that for concluding lack of novelty it is sufficient that all claim features are disclosed in the same prior art document. It is well-established in the case law of the Boards of Appeal that, unless there is a clear teaching combining different passages in a document, these passages may not be combined for the examination of novelty ("Case Law of the Boards of Appeal of the European Patent Office", 10th edition, July 2022, I.C.4.2; see especially T 1988/07, Reasons 3.3).
11. In the present case, sections 3.2 and 4.3 clearly are passages taken from different chapters of a textbook. In the excerpts of document SP06, the board could not find any cross-reference between the sections from which it would unmistakably follow that the pump of the low pressure gradient system illustrated in section 4.3 must be a short stroke piston pump described in section 3.2. Moreover, it follows both from the choice of words in section 3.2 ("die weitaus meisten") and from the table of contents (cf. section 3.4 entitled "Andere Pumpentypen") that other types of pumps can be used in HPLC systems.
12. It can therefore not be established with certainty whether the low pressure gradient system of section 4.3 operates by means of a short stroke piston pump or uses

a pumping unit without a reciprocating element, for example of the rotary type. Feature **F1.2** is thus not disclosed by document SP06.

(c) Feature F1.4 - longitudinal mixing unit

13. In point 4.7 of the reasons for the decision under appeal, the opposition division held that "SP06 discloses that the inlets of the proportioning valve (*Schaltventil*) depicted in Fig.4.2 of SP06 are opened during different time intervals for changing the proportions of the supplied fluids". The opposition division concluded therefrom that "SP06 discloses a succession of distinguishable fluid sections entering the mixing unit".

14. The board agrees with that conclusion. It is the function of the switching valve in a HPLC system to selectively open and close the connections to the different solvent lines. In doing so, longitudinally subsequent sections of different fluids are produced and enter the mixing unit. In gradient elution systems described in section 4.3 of document SP06, the mixing ratio of the different solvents, and thus the composition of the mobile phase, is typically varied during the course of the chromatographic process. This is done by altering the opening times of the switching valve to the different solvent lines ("Die Anschlüsse des Ventils werden verschieden lang geöffnet, wodurch die Zusammensetzung in der Mischkammer verändert wird"). The question is then whether the mixing unit placed immediately downstream of the switching valve in the example of the low pressure gradient system of Figure 4.2 is adapted for mixing the fluid sections *so as to modify their succession in flow direction.*

15. The board is not convinced that it is. Paragraph [0029] of the patent confirms that the longitudinal mixing unit of feature **F1.4** has to be understood as a mixing unit capable of performing the enhancement of the interaction of different fluid sections or the change of the order of certain fluid sections *in a direction along the flow path*, i.e. along the lumen of a fluidic conduit rather than only perpendicular thereto. It therefore differs from a general mixing unit that, in the words of paragraph [0028] of the patent, operates by "generating motion, particularly turbulences, in fluids so that different portions of the fluid are brought in interaction for a more homogeneous distribution of the fluid sections". Instead, the appellant is followed in its view that a longitudinal mixing unit requires the ability to produce a modified succession of subsequent fluid sections downstream of the mixing unit. A corollary of the above is that the output of the longitudinal mixing unit still has to comprise distinguishable fluid sections, albeit with a modified order.

16. Section 4.3 of document SP06 only mentions a magnetic mixing unit ("Magnetmischer") in the context of the low pressure gradient system. The board concurs with the appellant that such a mixing unit enhances the homogeneity of a fluid mixture by generating turbulences; it is generally not adapted to modify the succession of longitudinally subsequent fluid sections in the flow direction. Hence, feature **F1.4** is not disclosed by document SP06.

(d) Conclusion on novelty

17. In view of the above, the subject-matter of claim 1 of the second auxiliary request is new over document SP06

(Article 54(1) and (2) EPC). Considering that claim 12 of the second auxiliary request has method features corresponding to features **F1.2** and **F1.4** of claim 1 ("controlling a pumping unit (110) comprising a reciprocating element (115) for intaking fluid supplied at an inlet of the pumping unit (110) and for supplying the pressurized fluid at an outlet of the pumping unit (110)" and "mixing longitudinally subsequent sections of the fluids so as to modify their succession in flow direction", respectively), the conclusion in respect of claim 1 equally applies to claim 12 of the second auxiliary request.

Remittal to the opposition division

18. Under Article 111(1), second sentence, EPC the board of appeal may either decide on the appeal or remit the case to the department which was responsible for the decision appealed. The appropriateness of remittal to the department of first instance and the existence of special reasons within the meaning of Article 11 RPBA 2020 are matters for the discretionary decision by the board, which assesses each case on its merits. Even if there is no absolute right to have every issue decided upon by two instances, it has to be emphasised that it is the primary function of an appeal to review the decision under appeal in a judicial manner (Article 12(2) RPBA 2020).

19. In the contested decision, the opposition division held that claim 1 of auxiliary request 1 lacked novelty over document SP06. None of the further novelty objections raised by the former opponent were addressed. The same is true for the former opponent's objections against the allowability of the amendments and the sufficiency of disclosure. In addition, no inventive step

assessment was carried out in respect of the subject-matter of claims 1 and 12 of auxiliary request 1, which claims were deleted in the lower-ranking auxiliary request 1A on the basis of which the opposition division intended to maintain the patent.

20. In the board's view, these circumstances constitute special reasons for remitting the case. Taking further account of the fact that the appellant considered a remittal appropriate, the board exercised its discretion under Article 111(1) EPC to remit the case to the opposition division for further prosecution.

21. The board finds it fitting to add here that the prohibition of *reformatio in peius* prevails in principle until the final settlement of the opposition case and, therefore, also in opposition proceedings subsequent to a remittal under Article 111 EPC (T 1843/09, Reasons 2.3.3). The claims setting the framework for *reformatio in peius* are those according to auxiliary request 1A as held allowable by the opposition division in the decision underlying this appeal (see also points 1. and 3. above).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division for further prosecution.

The Registrar:

The Chairman:



N. Schneider

P. Lanz

Decision electronically authenticated