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**Datasheet for the decision
of 8 June 2021**

Case Number: T 0435/16 - 3.2.05

Application Number: 10193757.1

Publication Number: 2332735

IPC: B41M5/00, B41M7/00, C09D11/10,
C09D11/00

Language of the proceedings: EN

Title of invention:
Method for forming inkjet image

Patent Proprietor:
Konica Minolta Holdings, Inc.

Opponent:
Canon Production Printing Netherlands B.V.

Relevant legal provisions:
EPC Art. 83, 84, 56, 111(1)
EPC R. 80, 139
RPBA Art. 12(4)
RPBA 2020 Art. 13(2)

Keyword:

Amendment occasioned by ground for opposition (yes)
Sufficiency of disclosure (yes)
Claims - lack of clarity no ground for opposition
Late-filed evidence - admitted (yes)
Inventive step (yes)
Late-filed objection - admitted (no)
Correction of error (no)
Remittal to the department of first instance
Remittal (yes)

Decisions cited:

G 0001/10, G 0003/14, T 0792/00, T 0140/15



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Case Number: T 0435/16 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 8 June 2021

Appellant: Canon Production Printing Netherlands B.V.
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted on 23 December 2015 rejecting the opposition filed against European patent No. 2332735 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman P. Lanz
Members: T. Vermeulen
C. Brandt

Summary of Facts and Submissions

- I. The appeal was lodged against the decision of the opposition division rejecting the opposition filed against European patent No. 2 332 735 (hereinafter: the patent).
- II. The opposition was filed against the patent as a whole based on the grounds of Article 100(a) EPC together with Article 56 EPC (lack of inventive step), and under Article 100(b) EPC.
- III. In the decision under appeal the opposition division in particular considered the following documents:
- D1 US 2008/0238980 A1;
D2 US 2009/0038506 A1.
- IV. Together with the statement setting out the grounds of appeal, the appellant *inter alia* referred to the further documents:
- D3 US 2004/0263593 A1;
D5 "Fundamentals of Momentum, Heat, and Mass Transfer" by James R. Welty *et al*, third edition 1984, John Wiley & sons, pages xiii to xxii, 1, 163 to 164 and 471 to 472;
D9 US 2009/0284572 A1;
D10 EP 1 681 323 A1.
- V. In annex to their reply to the grounds of appeal the respondent filed a set of claims according to a new main request, as well as following documents:

D13 "Ink flow rate in Head Chamber", Sworn declaration of Toshiyuki Takabayashi dated 7 September 2016;

D14 "New experimental data", Sworn declaration of Toshiyuki Takabayashi dated 9 September 2016.

VI. With letter dated 18 October 2016 the appellant filed a further document:

D15 Letter of response to the USPTO dated 6 November 2012, application No. 12/958,635.

VII. On 8 July 2020 the parties were summoned to oral proceedings.

VIII. In a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal in the 2020 version (RPBA 2020), issued on 26 February 2021, the parties were informed of the board's provisional opinion.

IX. With a letter dated 10 May 2021 the respondent filed a further document:

D16 "New experimental data", Sworn declaration of Toshiyuki Takabayashi dated 6 May 2021 including additional experimental data.

X. Oral proceedings before the board were held by videoconference on 8 June 2021.

XI. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of an amended main request filed with the reply to the grounds of appeal, or alternatively, that the appeal be dismissed.

XII. Claim 1 of the main request has the following wording:

"A method for forming an inkjet image characterized in that the inkjet image is formed by ejecting an ink composition onto a medium from a nozzle 3 of an inkjet recording head comprising a plurality of pressure chambers 2, a plurality of nozzles in communication with the pressure chambers 2 and an ink chamber 4 in communication with a side of a plurality of the pressure chamber [sic] on [sic] which side is opposite to a side of the nozzle [sic] of the pressure chamber, and the ink chamber 4 is filled with the ink composition, the ink composition comprises a photo-initiator, a polymerizable compound and a gelling agent; and during an image recording including during stand-by, the method comprises: heat-keeping a temperature of the ink composition in the ink chamber at 70 °C - 140 °C, and flowing the ink composition in the ink chamber at a flow rate of 1.0 - 3.0 m/min."

XIII. The appellant's submissions may be summarised as follows:

Interpretation of claim 1

The meaning of the term "stand-by" was not clear from the patent. Therefore, a broad interpretation should be used, also including short breaks from printing. The PowerPoint slide shared during the oral proceedings before the board illustrated that a colour inkjet

printer in operation typically ejected ink from some nozzles, while the other nozzles were on standby. Also paragraph [0017] of the patent supported such an interpretation.

Rule 80 EPC

The main request did not meet the requirements of Rule 80 EPC, because the amendment failed to obviate a lack of inventive step and/or a lack of sufficiency of disclosure on the grounds of which the granted patent had been opposed. In fact, when filing the main request, the respondent merely indicated that the amendment was meant to further clarify the invention. It was not specified by which ground for opposition the amendment was occasioned. In the absence of any objection against Article 123(2) EPC, the argument that a potential lack of basis for amendment was overcome was not sufficient.

Sufficiency of disclosure

According to paragraphs [0088] to [0097] of the patent description, the step of flowing the ink at a specific rate of 1.0 - 3.0 m/min prevented unstable ejection, e.g. by preventing phase separation between the polymerizable compound and the gelling agent. Apart from the uncertainty whether a flow rate or a flow velocity was meant, this raised the question how the skilled person could make sure that the flow velocity lied in the claimed range in all units subdividing the ink chamber, as required by paragraph [0096] of the patent. Also, in order to prevent the phase separation the flowing step had to result in mixing of the ink composition. The extent to which mixing could take place normally depended on the flow behaviour of the

ink composition, which was determined by the Reynold's number, see Figure 12.1 on page 164 of document D5. However, flow velocity was just one of four parameters determining the Reynold's number. As the patent failed to disclose the dimensions of the print head or of the relevant flow channel, it was not clear which flow regime (turbulent or laminar) was supposed to be obtained with the claimed flow rate in order to prevent both phase separation and ejection instability.

Furthermore, not only the dimensions of the print head were missing, no information whatsoever was disclosed in the patent with regard to the type of print head used when performing the experiments of Tables 1 to 11. A third party was therefore deprived of the opportunity to repeat the experiments and verify the results.

In addition, the experimental section of the patent consistently used the unit "m/s" instead of the unit "m/min" used in the other parts of the patent. The flow velocities of the additional experimental data D14 were quite different from those used in the experimental data of the patent description. Thus the skilled person would not know which of the indicated units was the correct one and, hence, which flow speed had to be selected to reproduce the experiments.

As the example of the patent did not contain a complete experimental protocol, the burden of proof was on the respondent, not on the appellant (cf. T 792/00, Reason 9).

Therefore, the invention was not sufficiently disclosed.

Clarity

Claim 1 of the main request did not comply with Article 84 EPC because essential features were missing. Only one out of a total of four parameters typically determining the flow behaviour of fluids was specified in claim 1. The missing three parameters viscosity, density and diameter were essential to achieve "*stable ejection due to uniform ink supply to each nozzle*" mentioned in paragraphs [0096] and [0097] of the patent. In addition, it was not clear what was meant with the term "stand-by". According to Figure 1 of patent, because of the circulation within the ink chamber, in average the flow rate must be zero.

Admittance of document D16

Document D16 was only filed on 10 May 2021, i.e. well after the summons to oral proceedings before the board and after the board's preliminary opinion was issued. It was therefore late-filed and should not be admitted under Article 13(2) RPBA 2020, the more so since the mere fact that board did not agree with the respondent in its preliminary opinion was not an unforeseeable circumstance. The additional experimental data of document D16 related to the flowing of ink during stand-by. Yet the corresponding feature had already been introduced into claim 1 with the main request filed in September 2016. The lack of experimental data comparing the situation with and without stirring during stand-by had already been pointed out in the appellant's letter dated 18 October 2016.

Inventive step

(a) Starting from document D2

Document D2 was a suitable starting point. It disclosed that the ink was kept at a high temperature within the claimed range during jetting. Flowing the ink at a certain flow rate was already implicit from document D2, the reason being that during jetting ink had to be continuously supplied to replenish ink chamber.

The differing features were the claimed temperature range during stand-by and the flow rate range during image recording including during stand-by. Other than that these measures made sure that the fluidity of the ink was maintained, no advantageous effect was recognised. The temperature at which the ink was heated would depend on its gelling temperature. This was not specified in claim 1. The achievement of stable ink ejection depended on its flow behaviour, which, according to the Reynold's number, was not solely determined by the velocity, but also by the viscosity and the density of the ink, and by the geometry of the body through which it flowed. But claim 1 was not restricted with respect to viscosity, density and geometry. To be able to draw conclusions regarding the effect of the flowing step during stand-by, experiments were required to compare a situation where ink was flowed at a flow rate of 1.0 - 3.0 m/min during ejection as well as during stand-by and a situation wherein this was only done during ejection. No such experiments were provided in the patent, however. A certain amount of synergy possibly existed between the differing features, because the ink first had to be heated in order to make it fluid.

The experimental section of the patent did not provide any evidence of a technical effect of the differing features. First, neither the experimental procedure nor the type of printing head used was clear from the patent description. With regard to the heat-keeping step, reference was made to paragraph [0118] according to which heating was carried out in the experiments at 100 °C "from pre-tank to head". It was not clear what this meant for the temperature in the ink chamber. Moreover, no comparative examples with regard to the heat-keeping were presented. With regard to the flowing step, it was noted that all flow rates expressed in m/s in Tables 8 and 9 lied well outside the claimed range. The flow rate of the ink in the comparative examples without stirring was not mentioned. The information provided in paragraph [0118] yielded an amount of 0.5 liter ink supply necessary for printing the medium mentioned in paragraph [0117]. This must result in a substantial flow in the chamber, which could lie above the lower limit of the claimed velocity range. No advantageous effect with regard to curability could be attributed to the specific flow rate. Some comparative data showed even better results than the data according to invention. With regard to the ejection stability, the comparative data filed by the respondent in their letter dated 29 May 2014 in the proceedings before the opposition division resulted in acceptable results even if the flow rate was 0.5 m/min and 5 m/min, respectively. Therefore, the limits of the claimed velocity range were arbitrary.

Assuming nonetheless that the objective technical problem lied in a stable ejection in accordance with paragraphs [0096] and [0097] of the patent, the skilled person would have combined the method known from

document D2 with the teaching of document D9 or document D1 and arrive at the subject-matter of claim 1 in an obvious manner.

First, when using inks with a steep viscosity increase at decreasing temperatures it was obvious to keep the high temperature also during stand-by in order to maintain the fluidity of the ink composition. Anyway, stand-by times could be so short that no significant cooling or flow velocity reduction would occur. Then, document D9 taught that ink was circulated in an ink chamber 11 of printhead in a way that made the ejection stable. Based on Figure 12 and the data disclosed in paragraphs [0171] and [0180] of document D9, a flow velocity of of 1.51 m/min could be calculated, which fell within the claimed range.

Alternatively, the skilled person would have turned to document D1, which taught to continuously circulate the ink so as to prevent ejection defects caused by the increased viscosity near non-ejecting nozzles. The document included a reference to UV-curable inks. The skilled person would have realised that a suitable flow velocity was necessary for the ink circulation. A value falling within the claimed range would be selected as the result of routine experimentation. A further advantage according to document D1 was that the temperature distribution of the interior of the recording head became more uniform due to the flow of ink. According to paragraph [0115], the issue with UV-curable inks mentioned in paragraph [0020] was solved by removing air from the flowing ink. Even when the nozzles stopped ejecting ink, i.e. during stand-by, the circulation continued through ports 74.

Therefore, the subject-matter of claim 1 according to the main request did not involve an inventive step starting from document D2.

(b) Starting from document D1

An inkjet recording apparatus with an ink circulation system including a print head was known from document D1. Nozzles 64 were in communication with the pressure chambers 58 and a common flow channel 52 that acted as an ink chamber. The temperature of the ink was controlled for jetting as well as for non-jetting nozzles. The subject-matter of claim 1 differed therefrom in the composition of the ink, in the temperature of the ink lying in the range of 70 °C - 140 °C, and in the flow rate lying in the range of 1.0 - 3.0 m/min. The technical effect of the first differing feature was that a suitable ink composition was provided that was curable. The further differing features did not have any technical effect, as indicated in the context of document D2. The objective technical problem was to provide a suitable ink composition that showed improved curability and that could be jetted by the print head according to document D1.

In document D1, reference was already made to UV-curable inks. Consulting the prior art in the field of UV-curable inks, the skilled person would have turned to document D2. There, an ink composition according to claim 1 was described. The ink was heated and jettable at 90°C, i.e. within the claimed range. In addition, Table 3 of document D2 showed that a steep increase in viscosity occurred at temperatures in between about 70 °C and about 50 °C., which was more than the 40 °C at which, according to the patent, stable ink ejection was

obtained. When starting from the print head of document D1 and consulting document D2 for the ink composition, the skilled person would have selected a flow rate for operating the print head. By routine trial and error selection the skilled person would have arrived at a value falling within the claimed range.

In case a technical effect could be attributed to the flowing step, then the skilled person would have additionally turned to document D9, which related to the same technical field as document D1. Document D9 disclosed that liquid flowed through a liquid circulation path, the dimensions of which were given in paragraph [0171]. From Figure 12 and paragraph [0180], a fluid velocity of 1.51 m/min could then be calculated, i.e. within the claimed range. It would have been obvious for the skilled person to combine this fluid velocity with the method disclosed by D1.

In an alternative approach starting from document D1, the skilled person would have consulted document D10 which also disclosed a radiation curable ink composition. In paragraph [0049] of that document, a method for forming an image using an ink jet apparatus was disclosed. Each of the examples IV to IX in document D10 comprised an ink composition with the components as in claim 1. A jetting temperature of about 85 °C was mentioned in that context.

Therefore, the subject-matter of claim 1 according to the main request did not involve an inventive step starting from document D1.

(c) Admittance of the inventive step objection having regard to document D2 in combination with document D3

The objection should be admitted into the appeal proceedings. Exceptional circumstances applied as laid out by the respondent in respect of the admittance of document D16.

(d) Admittance of the inventive step objection having regard to document D10 in combination with document D1

In the communication pursuant to Article 15(1) RPBA 2020 the board stated that documents related to UV-curable inks were more promising starting points for assessing the inventive step. Document D10 was one of those documents. It was already mentioned as a starting point in the statement setting out the grounds of appeal. The objection was a new argument based on evidence already on file.

Request for correction

Document D15 provided evidence that the respondent had been aware of the error before it was pointed out by the appellant. In a parallel national application before the USPTO an amendment had been filed as early as 6 November 2012 replacing the units "m/s" by "m/min". Even when taking into account the common general knowledge, it was not clear from the application as filed whether the unit "m/s", which was used 14 times throughout the experimental section of the patent, was wrong. The respondent did not provided evidence that

the error was indeed obvious. Document D13 was a mere opinion of the inventor of the patent.

XIV. The respondent's submissions essentially argued as follows:

Interpretation of claim 1

In keeping with paragraphs [0092] and [0093] of the patent, the method step of flowing the ink composition required that the claimed flow rate be achieved in all units of the ink chamber shown in Figure 3.

According to the "Case Law of the Boards of Appeal of the European Patent Office", 9th edition 2019 (hereinafter: "Case Law"), section II.A.6.3.1, it was allowed to use the description to interpret the claims. The term "stand-by" was defined in paragraphs [0090] and [0091] of patent. Accordingly, it designated a period without printing between periods of printing. Moreover, in paragraph [0121] of the patent reference was made to "standing-by 30 minutes", so that the appellant's view that a very short period between printing was not excluded was incorrect.

Rule 80 EPC

Rule 80 EPC allowed an amendment to be occasioned by a ground for opposition even if that ground had not been invoked by the opponent. By specifying that also the flowing step was performed during an image recording including during stand-by, claim 1 of the main request had been amended to overcome a potential objection of added subject-matter in view of the disclosure of paragraph [0089] of the published application. Moreover, the subject-matter of claim 1 according to

the main request was restricted with respect to the granted version, so that the amendment was also occasioned by one of the grounds of Article 100(a) EPC.

Sufficiency of disclosure

The appellant did not provide any evidence for the assertion that the fluid would not be mixed well under laminar flow conditions and that therefore unstable ejection would occur. The experimental section of the patent, on the other hand, provided many examples that unstable ejection was prevented when the ink flowed at a flow rate of between 1.0 and 3.0 m/min. Therefore, the burden of proof was on the appellant, who did not submit any comparative data or convincing arguments that the invention was not sufficiently disclosed.

Clarity

The amendments to the claims did not cause any lack of clarity. Clarity was not a ground for opposition. As long as ink flowed in the ink chamber, a certain flow rate must be obtained.

Admittance of documents D9 and D10

The board should not admit documents D9 and D10 under Article 12(4) RPBA 2007. Document D9 was only cited in the statement setting out the grounds of appeal when objecting to the inventive step of claim 1 against the combination of documents D1, D2 and D9. The request to admit document D10 constituted an abuse of procedure. It was submitted during oral proceedings in opposition, not accepted by the opposition division and then withdrawn again by the appellant. No explanation was given why the margin of discretion of the opposition

division not to admit document D10 was wrong. Moreover, it was only mentioned in the grounds of appeal when objecting to the inventive step of claims 1 and 2 against a combination of documents D1 and D10.

Admittance of document D16

Document D16 should be admitted into the proceedings as it was filed in direct response to the board's preliminary opinion that the subject-matter of claim 1 according to the main request did not involve an inventive step. Document D16 was *prima facie* highly relevant in changing the outcome of the decision. With the statement setting out the grounds of appeal the appellant had made the general objection that, in the absence of any relative amounts in respect of the different ink components in claim 1 and for lack of an indication which type of printing head was used in the experimental examples in the patent, no technical effect was presented across the entire width of the claim. No counter-experimental evidence was filed. Hence, the respondent could not identify which of these issues might be considered problematic. It was not reasonable to experimentally prove the technical effect for all the issues raised by the appellant. The exceptional circumstances were created when the board identified the missing information on the dimensions of the printing head as the critical issue in its preliminary opinion.

Inventive step

(a) Starting from document D2

The most suitable starting point was document D2. According to the prior art method of document D2, the

ink was melted before ejecting the droplets, not necessarily during stand-by. Typically, in such cases, the ink would be melted again after restarting the printer. During the printing process, ink was flowing so that the flow was not zero at such moments. But the ink did not flow during stand-by. Further, there was no teaching in document D2 with regard to the specific structure of the inkjet recording head.

The differing feature concerning the specific flow rate achieved the technical effect of preventing the phase separation between the monomer and the gelling agent. The effect of the differing feature concerning the temperature of the ink was to maintain the fluidity, but it also made the phase separation between the monomer and the gelling agent less likely to occur.

In accordance with paragraph [0089] of the patent, the examples in the experimental section of the patent involved stirring the ink during image formation including during a stand-by, a period without printing which existed between periods of printing by ejecting ink composition from the nozzle. The results were analysed with respect to the results of comparative examples in which the ink was not stirred, neither during ejection, nor during stand-by. Even if the experiments without stirring had caused some movement of the ink during ejection, this was not the case in stand-by, which according to paragraph [0121] of the patent took 30 minutes. A comparison of the results of the examples in Table 10 of the patent clearly illustrated that the methods where no stirring took place scored worse in the category "hollow defects" than the corresponding methods performed in accordance with the invention. In particular, comparing the examples 45 to 51, in which according to Table 9 of the

patent the ink composition was stirred in the ink chamber, with the examples 52 to 58, in which no stirring occurred, led to the conclusion that stirring during ejection and during stand-by did not result in any hollow defects. Paragraph [0121] connected the lack of hollow defects to the technical effect of unstable ejection. Furthermore, paragraph [0096] of the patent mentioned the technical effect of preventing phase separation and improving stable ejection as a result of the claimed flow rate "at least during standby".

The appellant's argument that the technical effect would depend on the geometry of the printing head was incorrect. Paragraph [0080] laid down the mechanism which was independent from laminar or turbulent flow behaviour. Furthermore, the appellant did not provide any proof supporting the importance of the ink's viscosity, its density and the geometry of the ink chamber on the stability of the ejection, whereas the experimental section of the patent provided many examples where unstable ejection was prevented when the ink's flow rate was between 1.0 and 3.0 m/min. The appellant's objection to the wrong units used in the experimental section of the patent was overcome by filing the new experimental data D13 and D14. Regarding the comparative data filed before the opposition division with letter dated 29 May 2014, it was observed that the results of tests 37 and 92 were still better than the results of the comparative tests 93 to 96.

Document D2 did not include any pointer that the ink composition should flow during stand-by, nor that hollow defects would be reduced by flowing the ink including during stand-by. The skilled person would not have turned to documents D1 or D9, as they concerned different types of inks and were therefore not

compatible with document D2. Both documents were silent in respect of flow velocity and failed to have a clear and unambiguous disclosure of a heating step during stand-by. Moreover, they did not suggest how unstable ejection was prevented by flowing and heating also during stand-by. The appellant's argument in respect of bubble formation was mistaken: this could occur during flowing just as well as during stirring. The pump shown in Figure 3 of document D1 only operated during ejection. Nor was the ink stirred during very short interruptions. Paragraph [0016] of document D1 explicitly stated "during printing" only. The appellant was wrong in their conclusion regarding paragraph [0020] of document D1: it directed away from continuous circulation for UV-curable inks. Regarding document D9, it addressed circulation, but aimed at discharging bubbles. Paragraphs [0006] and [0180] of document D9 did not indicate to the skilled person that ink was flowed during stand-by. Moreover, the appellant's calculation based on Figure 12 of document D9 was not feasible to determine the ink flow rate.

Even if the objective technical problem were reduced to finding an alternative method, no lack of inventive step would be concluded. The skilled person would have never heated and flowed an ink in an ink chamber if this were not beneficial to them for the simple fact that it was energy consuming. Stand-by also included overnight, between two printing jobs that might take a long time. In doing so, the printer would wear off a lot sooner. The skilled person would have further required appropriate hardware and software to implement such measures. A dedicated pressure control would have been necessary to strictly control the ink pressure. This was much more complicated. The passage in

paragraph [0007] of the patent related to a different type of ink.

(b) Starting from document D1

The problem solved in document D1 was totally different from the one solved in the patent. It focused on avoiding or at least limiting the evaporation of the solvent in the ink. In addition, paragraphs [0020] and [0021] of document D1 pointed away from using UV-curable inks that comprised gelling agents. Hence, document D1 did not represent the closest prior art. Starting nevertheless from document D1, the differing features were the ink composition, the step of heat-keeping and the step of flowing. In particular, the technical feature of the ink flow velocity was not addressed in document D1 at all.

The technical effect of the ink composition was two-fold: ejection stability linked to the absence of hollow defects and durability of an image layer due to curability, cf. paragraph [0058] of the patent. From the experimental section of the patent it was clear that methods using an ink composition which was not in accordance with claim 1 - such as examples 15 and 16 - received a worse score in the categories characteristic for a good curability. The technical effect of the heat-keeping step lied in the prevention of a phase separation. The technical effect of the ink composition together with the flow rate was to avoid or at least to decrease the formation of hollow defects and, thus, to enhance ejection stability. The connection between flow rate, phase separation, unstable ejection and hollow defects was addressed in paragraph [0096] of the patent. This immediately followed from the scores given in Tables 10 and 11 to comparable examples. The

objective technical problem was formulated as providing an image forming method in which the ejection stability was improved and in particular hollow defects were avoided.

The skilled person would not have used the apparatus according to document D1 in combination with UV-curable inks having a gelling agent as a component. Paragraph [0020] of document D1 explained that circulation of UV-curable inks would result in a decreased curability and a degradation of the ink. The temperature of the ink disclosed in paragraph [0099] of document D1 was outside the claimed temperature range. None of the other prior art documents adduced by the appellant disclosed heat-keeping the ink composition in the ink chamber at 70 to 140 °C and flowing the ink at a flow rate of 1.0 to 3.0 m/min.

Therefore, the subject-matter of claim 1 according to the main request involved an inventive step.

(c) Admittance of the inventive step objection having regard to document D2 in combination with document D3

In the written proceedings document D3 was never discussed in connection with Article 56 EPC. The objection raised for the first time during oral proceedings in appeal should therefore not to be admitted.

(d) Admittance of the inventive step objection having regard to document D10 in combination with document D1

In the written proceedings in opposition and in appeal the appellant had always started from either document D1 or document D2 for the inventive step assessment. The objection was therefore new and presented at a very late stage; it should not be admitted.

Request for correction

The use of "m/s" in the example section of the patent was a clerical error already present in the parent PCT application. This error should be corrected according to Rule 139 EPC by replacing the units by "m/min". The mistake was obvious because it was immediately evident to a person skilled in the art that such a flow rate was uncommon and unrealistic for an inkjet ink and that flow rates with such a fast velocity would destroy a printing machine. Moreover, the unit "m/min" was used over the whole specification and the claims. It must also be borne in mind that the high number of incorrect units in the example section of the patent was due to a simple consequential error. The errors went unnoticed until the appellant pointed them out in the statement setting out the grounds of appeal. The similar mistake noticed on 6 November 2012 in a parallel patent application in the US did not have any bearing on this case. Anyway, the USPTO clearly and directly accepted the correction. A sworn declaration D13 was filed as evidence that the mistake was obvious. In the event that the request for correction was not granted, experimental data D14 should be admitted. Failure to do

so would constitute a violation of the respondent's right to be heard.

Reasons for the Decision

Claim interpretation

1. Claim 1 of the main request is directed to a method for forming an inkjet image that *inter alia* comprises the step of "flowing the ink composition in the ink chamber at a flow rate of 1.0 - 3.0 m/min". The expression "flow rate" is generally understood as the amount of fluid passing by some location through an area during a period of time. Depending on how the amount is defined, a distinction is normally made between volumetric flow rate (SI unit: m³/s) and mass flow rate (SI unit: kg/s). The unit "m/min" used in the method step of claim 1, however, unmistakably expresses a velocity. Also the patent description only discloses velocity units in conjunction with the expression "flow rate". In the present context, the expression is therefore understood to mean the flow *velocity* of the ink composition.
2. Even though paragraphs [0092], [0093], [0096] and [0120] of the patent could be read to suggest that the temperature and the flow velocity of the ink composition must lie within the ranges of claim 1 according to the main request in all 16 units of the ink chamber depicted in Figure 3, such a limitation is not imparted by the claim wording. In the board's view, the skilled person would interpret the temperature and flow velocity constraints of claim 1 in the sense that they must be achieved for at least one position in the ink chamber. This is corroborated by the indefinite article used in the heat-keeping step ("a temperature")

and by the consideration that a substantial velocity gradient must exist in all near-wall regions.

3. According to claim 1 of the main request, the steps of heat-keeping and flowing are carried out "during an image recording including during stand-by". In the context of inkjet printers, the skilled person would immediately appreciate that the term "stand-by" must be construed according to its ordinary meaning, i.e. an operational mode, in which the power is switched on but the device is not in active use. This seems to be in line with the definition given in paragraphs [0090] and [0091] of the patent: a period without printing which exists between periods of printing. Since, as a consequence, idle nozzles in an active inkjet printer are clearly not in stand-by, the board did not see any need to deal with the respondent's objection against admitting the PowerPoint presentation submitted by the appellant during the oral proceedings before the board in an attempt to construe the term "stand-by".

Rule 80 EPC

4. The board agrees with the respondent that the provision of Rule 80 EPC, which allows a patent proprietor to react to the opponent's objections by amending the description, claims and drawings, provided that the amendments are occasioned by the grounds for opposition specified in Article 100 EPC, also applies if the respective ground has not been invoked by the opponent (see also "Case Law", 9th edition 2019, IV.C.5.1.1).
5. Claim 1 according to the main request was filed with the reply to the grounds of appeal. It contains the following amendment compared to claim 1 of the patent

as granted (additions are underlined, deletions are marked by strike-through):

"...and ~~comprising steps of:~~ during an image recording including during stand-by, the method comprises: heat-keeping a temperature of the ink composition in the ink chamber at 70 °C - 140 °C ~~during an image recording including during standing-by,~~ and flowing the ink composition in the ink chamber at a flow rate of 1.0 - 3.0 m/min."

The amendment effectively specifies that also the flowing step is performed during an image recording including during stand-by, a condition which was not required by the wording of claim 1 of the patent as granted. The subject-matter has therefore been limited by virtue of the amendment. This can be regarded as a serious attempt to overcome a ground for opposition under Article 100(a) EPC together with Articles 54 or 56 EPC.

6. For the above reasons, the board holds that the requirements of Rule 80 EPC are met.

Sufficiency of disclosure

7. To establish insufficiency of disclosure, it is necessary to prove that the patent as a whole did not enable the skilled person - who could avail himself of his common general knowledge - to carry out the invention as from the filing date. It is settled case law that a successful objection of lack of sufficiency presupposes that there are serious doubts, substantiated by verifiable facts (see "Case Law", II.C.9). Otherwise it is unlikely to succeed. Moreover, it is generally not sufficient to invoke a lack of

clarity or a lack of support by the description in order to establish insufficiency of disclosure.

8. In the light of the description and the figures of the patent, the board is not convinced that the skilled person would have been unable
- to select an inkjet recording head of the type shown in Figure 1 or 2 and described in paragraphs [0083] to [0086], comprising a plurality of pressure chambers arranged between an ink chamber and a plurality of nozzles, so that the plurality of nozzles are in communication with the pressure chambers and the ink chamber is in communication with a side of a plurality of the pressure chambers opposite to a side of the nozzles of the pressure chambers,
 - to select an ink composition comprising a photo-initiator, a polymerizable compound and a gelling agent from amongst those listed in paragraphs [0018] to [0031], paragraphs [0032] to [0051] and paragraph [0056], respectively,
 - to fill the ink chamber with said ink composition,
 - during an image recording including during stand-by, to keep the temperature of the ink composition in (at least one position of) the ink chamber at 70°C - 140°C by means of the heater mentioned in paragraph [0087] and shown at the respective side walls of the ink chamber in Figures 1 and 2,
 - also during an image recording including during stand-by, to cause the ink composition to flow in (at least one position of) the ink chamber at a flow velocity of 1.0 - 3.0 m/min by means of rotating stirring blades or pumps as illustrated in Figures 1 and 2, respectively,

- and to form an inkjet image by ejecting the ink composition onto a medium from a nozzle of the inkjet recording head.

9. The appellant questioned whether the features of claim 1 provided the technical effect of preventing a phase separation between the polymerizable compound and the gelling agent. Such a technical effect is, however, not mentioned in claim 1 of the main request, but only in paragraphs [0080] and [0096] of the patent description. It is established case law that an objection of insufficient disclosure cannot legitimately be based on an argument that the patent does not enable a skilled person to achieve a technical effect which is not defined in the claim (see "Case Law", II.C.3.2). This issue notwithstanding, the board notes that the mechanism underlying the alleged technical effect - the tendency of ink compositions containing gelling agents to have a high affinity between polar groups of polymerizable compounds and polar groups of gelling agents - is largely speculative in view of the wording used in paragraphs [0079] and [0080] of the patent ("not understood in detail", "presumed", "assumed", "maybe assumed"). The board is therefore unable to see why the technical effect alleged by the respondent in the description of the patent should be taken into account when examining the sufficiency of disclosure.
10. Furthermore, the board does not accept that in the present case the skilled person was forced to rely on the experimental data included in the patent in order to carry out the invention. As long as a patent contains sufficient information allowing the skilled person to reliably determine how to perform the claimed invention, there is no reason to deny sufficiency of disclosure merely because of possibly erroneous or

missing details in the experimental section of the patent. Nor is there any need to answer the question whether the burden of proof had shifted because of allegedly missing information in regard of the experimental section of the patent description. Hence, decision T 792/00 does not bear any relevance on the present case.

11. As to the appellant's argument that the burden of proof was on the respondent, the following is noted. According to established case law, the opponent generally bears the burden of proving insufficiency of disclosure. As mentioned in point 7. above, the objection should be based on serious doubts, substantiated by verifiable facts. If the opponent can discharge their burden by convincingly arguing that common general knowledge would not enable the skilled person to put a contested feature of the invention into practice, it is then up to the patent proprietor to prove the contrary. This means, conversely, that, unless the opponent's arguments convince the board, the burden of proof is not reversed (see "Case Law", III.G. 5.2). In the present case, the respondent's arguments did not convince the board for the reasons set out above; the burden of proof was thus still with the respondent. This was different in T 792/00, where the skilled person had to rely on an example provided in the patent that was explicitly described as hypothetical had clearly not been actually carried out.
12. The board therefore judges that the patent as amended with the main request discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC).

Clarity

13. In considering whether, for the purposes of Article 101(3) EPC, a patent as amended meets the requirements of the EPC, the claims of the patent may be examined for compliance with the requirements of Article 84 EPC only when, and then only to the extent that, the amendment introduces non-compliance with Article 84 EPC (G 3/14, OJ EPO 2015, 102, Order).
14. With respect to the patent as granted, claim 1 according to the main request was amended by specifying that also the flowing step applied during an image recording including during stand-by. None of the appellant's objections under Article 84 EPC - the lack of essential features for determining the flow behaviour, the definition of the term "stand-by", the average flow rate - are caused by the amendment to claim 1.
15. Hence, within the domain of scrutiny open to the board in application of decision G 3/14, claim 1 of the main request complies with Article 84 EPC.

Admittance of documents D9 and D10

16. According to Article 12(4) RPBA 2007, which applies in the present case pursuant to the transitional measures enshrined in Article 25(2) RPBA 2020, it lies within the discretion of the board to hold inadmissible facts, evidence and requests which could have been presented or were not admitted in the first instance proceedings.
17. Documents D9 and D10 were filed for the first time with the grounds of appeal. They were relied upon by the appellant for the assessment of inventive step in

sections 2.2.3 to 2.2.10 of the statement setting out the grounds of appeal, i.e. in the initial phase of the appeal proceedings after a decision which was negative for the appellant.

18. The respondent's grievance was mainly with the submission of document D10, which in their view was filed and subsequently withdrawn before the opposition division. However, as apparent from point 3 of the minutes of the oral proceedings held before the opposition division, document D10 had not been under consideration. Instead, the appellant had referred to "*the documents cited in §11 of the description of the patent in suit, i.e. JP2006-193745, JP2009-510184 and in particular JP2008-513245*". According to point 5 of the minutes, these documents were withdrawn after conditional requests by the respondent to adjourn the oral proceedings and to have a decision on apportionment of costs. There was then no need for the opposition division to take a decision on the admittance of the documents; the corresponding arguments of the opponent were disregarded (point 7 of the minutes).

19. Even though document D10 belongs to the patent family of withdrawn document JP2006-193745 so that the appellant's behaviour at the oral proceedings could arguably be regarded as a way to prevent their case to be considered by two instances, the board is unable to see an abuse of procedure in the present case. From the reasoning given in section 2.2.3 of the statement setting out the grounds of appeal, the board accepts that document D10 was submitted to provide further evidence of prior art radiation curable ink compositions. Furthermore, JP2006-193745 was cited as Patent Document 1 in the description of the technical

background in the patent for exactly that reason (see paragraph [0006] of the patent). The respondent, who is the proprietor of the patent, could be assumed to have been familiar with the technical content of document D10 well before the appeal was filed.

20. Therefore, the board exercised its discretion to admit documents D9 and D10 under Article 12(4) RPBA 2007.

Admittance of the experimental data D16

21. Article 13(2) RPBA 2020, which applies in view of the transitional provisions set out in Article 25(3) RPBA 2020, imposes stringent limitations on appeal submissions which are made at an advanced stage of the proceedings, namely after expiry of a period set by the board of appeal in a communication under Rule 100(2) EPC or, where no such communication is issued, after notification of a summons to oral proceedings. Where an amendment is made to a party's appeal case at this advanced stage of the proceedings, Article 13(2) RPBA 2020 provides that it will, in principle, no longer be taken into account unless the party concerned has shown compelling reasons why the circumstances are exceptional. If such circumstances are shown to exist, the board may, in exercising its discretion, decide to admit an amendment made to the appeal case at this advanced stage of the proceedings (see document CA/3/19, section VI, Explanatory remarks on Article 13(2); see also Supplementary publication 2 to OJ EPO 2020).

22. As justification for the late filing of the experimental data D16 one month before the oral proceedings were held, the respondent invoked a general objection the appellant had made in the statement setting out the grounds of appeal and an observation

advanced by the board in the communication pursuant to Article 15(1) RPBA 2020.

23. The board is unable to see how those developments could have given rise to exceptional circumstances within the meaning of Article 13(2) RPBA 2020, for the following reasons:

In its communication pursuant to Article 15(1) RPBA 2020 the board did not address the general objection raised by the appellant in the paragraphs bridging pages 3 and 4 of the statement setting out the grounds of appeal against the lack of relative amounts of the various ink components. Instead, in accordance with the proper application of the problem-solution approach, the technical effects were assessed in respect of those features that were identified as differing from the starting point D2. In point 32 of the communication the board made the following observation:

"...it does not appear to be plausible that an ink composition flowing at a velocity between 1.0 m/min and 3.0 m/min would prevent unstable ejection irrespective of the kinematic viscosity of the ink and the hydraulic diameter of the ink chamber. To conclude otherwise would be on par with denying the importance of the Reynolds number in the stability analysis of fluid flows."

Contrary to what the respondent implied during the oral proceedings before the board, this was not a new argument presented for the first time to the respondent with the communication pursuant to Article 15(1) RPBA 2020. On page 9 of the statement setting out the grounds of appeal the appellant had already argued that a stable ejection was not solely determined by the

fluid velocity, but also "by the viscosity of the fluid, the density of the fluid and the size and geometry of the body through which the fluid flows".

There is therefore no reason to believe that the board's concern with the missing viscosity and dimensions could not have been anticipated by the respondent.

24. Moreover, it does not transpire to the board how the comparative experiments of document D16 were a reaction to the issue initially raised by the appellant and confirmed in the board's communication. In the respondent's own words taken from point 8 of their letter dated 10 May 2021 "[t]he newly filed experiments are comparative experiments which address the technical effect of the feature "*flowing the ink composition in the ink chamber during stand-by*" ". However, this bears no relation to the board's observation in respect of the Reynold's number. Rather, it corresponds to the amendment of claim 1 introduced with the main request filed with the reply to the grounds of appeal, which was objected to for lack of comparative experimental data in the appellant's letter dated 18 October 2016 (cf. section 3.2 on page 6). The board therefore adheres to the appellant's view that the comparative experimental data of document D16 could have been filed in immediate reaction to that letter, i.e. well before the summons to oral proceedings were notified.

25. As no cogent reasons were given why exceptional circumstances applied in the present case, the board exercised its discretion not to take document D16 into account (Article 13(2) RPBA 2020).

Inventive Step

(a) Starting from document D2

26. It was common ground between the parties that document D2 is a suitable starting point for assessing inventive step of claim 1 according to the main request. Similarly to the invention described in the patent, it relates to a method for forming an ink jet image by means of a so-called "phase change ink" which comprises a gelling agent that keeps the ink solid at room temperature. As a consequence, a heating member must be foreseen in order to keep the temperature of the ink composition above its phase transfer temperature, i.e. the temperature at which the viscosity changes rapidly from a fluid solution state to a gel state (paragraph [0057] of the patent). Nor was it disputed that the ink composition known from document D2 further comprises a polymerizable compound and a photoinitiator which initiates the polymerization of the curable components of the jetted ink upon exposure to radiation.

Regarding the structure of the inkjet recording head disclosed in document D2, the board cannot find any fault in the conclusion of the opposition division (cf. point 6.2 of the reasons for the decision under appeal) that it involves a plurality of pressure chambers, each connecting an ink chamber at one side thereof with a plurality of nozzles at the opposite side. A clear indication in this regard is the fact that the ink composition of document D2 is disclosed for use in "a piezoelectric printing process" (paragraphs [0023] and [0083]), a process which according to paragraphs [0018] and [0019] implies such a structure.

Further, paragraph [0076] of document D2 teaches that the radiation curable phase change inks are jetted "*at low temperatures, in particular at temperatures below about 110° C., in one embodiment from about 40° C. to about 110° C., in another embodiment from about 50° C. to about 110° C., and in yet another embodiment from about 60° C. to about 90° C., although the jetting temperature can be outside of these ranges*". Each of the upper limits of those ranges lies within the range of 70 °C - 140 °C.

27. Nothing is disclosed, however, with regard to the temperature of the ink composition in the ink chamber during stand-by or with regard to the active or passive flow rate or flow velocity of the ink composition in the ink chamber. Hence, the subject-matter of claim 1 differs from the disclosure of document D2 in the steps of:

(i) heat-keeping a temperature of the ink composition in the ink chamber at 70°C - 140°C including during stand-by, and

(ii) flowing the ink composition in the ink chamber at a flow rate of 1.0 - 3.0 m/min during an image recording including during stand-by.

28. No particular technical effect is mentioned in the patent with regard to the claimed temperature range of feature (i). Contrary to what the respondent alleged, the patent only links the expression "phase separation" to the flow rate (cf. "keeping the flow rate in predetermined range" in paragraph [0081] and "flow rate of 1.0 m/min or more" in paragraph [0096]). In praxis, the effect of a specific temperature will vary depending on the composition of the ink and, in

particular, in function of the phase transfer temperature of the ink composition. In the absence of such information in claim 1, the board is not persuaded that a particular advantage can be attributed to the temperature range of 70 °C - 140 °C.

It cannot be denied that the step of heat-keeping an ink composition comprising a gelling agent also during stand-by prevents a viscosity increase and a corresponding fluidity loss, hence warranting the ink composition's ability to flow (see paragraphs [0055] and [0089] of the patent). In view thereof the technical effect of differing feature (i) is regarded as maintaining the fluidity of the ink composition.

29. When determining the technical effect of feature (ii), the board is particularly mindful that the flowing step constrains the flow *velocity* rather than the (mass or volumetric) flow *rate* of the ink composition for at least one position in the ink chamber (see points 1. and 2. above). Given that claim 1 fails to impose any requirement on the dimensions of the inkjet recording head from which the cross-sectional area of the ink chamber could be derived, there are no restrictions on the actual flow rate of the ink composition.

In the judgment of the board, the appellant made a convincing case that the existence of a causal link between the flow velocity of the ink in the ink chamber and the stability of the ejection from the nozzles strongly depends on several other unclaimed parameters, such as the ink properties and the dimensions of the ink chamber. Indeed, it is well-known that the fundamental character of a fluid flow is determined by the dimensionless Reynold's number, which correlates the inertia forces caused by the momentum of the fluid

to the viscous forces due to friction. Accordingly, also the density, the dynamic viscosity, and a characteristic length are required to establish the flow state. Without the knowledge of these parameters the skilled person can only speculate whether a velocity between 1.0 and 3.0 m/min in the ink chamber leads to a flow state that might positively affect the ejection from the nozzles. This view is reinforced by the consideration that the possible impact of the flowing step is linked to the position in the ink chamber where the desired flow velocity is reached. A velocity of 3.0 m/min in a near-wall region may have a completely different influence on the ink ejection than a velocity of 1.0 m/min in the centre of the ink chamber.

In view thereof, the board is not persuaded by the respondent's argument that the invisible phase separation resulting from the affinity that exists between certain polar groups would effectively be inhibited by keeping the flow rate in the claimed velocity range during image recording including during stand-by. Further weight to this conclusion is lent by the conjectural character the patent itself attributes to this phase separation mechanism (see paragraphs [0079] and [0080]: "not understood in detail", "presumed", "assumed, "maybe assumed").

Also the examples disclosed in the experimental section in paragraphs [0108] to [0127] and Tables 1 to 11 of the patent do not convince the board that the feature (ii) has the technical effect of a stable ink ejection. Even when assuming to the benefit of the respondent that the skilled person would interpret the velocities in the experimental section with "m/min" instead of "m/s" and even when disregarding that, unlike the claim

wording, these velocities are referred to as "average values" in paragraph [0120], the board can ascribe little value to the relative scores given in the sub-categories "Hollow defect 500m Print" and "Hollow defect After standing-by 1m Print" of Tables 10 and 11 without even having the slightest idea which inkjet recording apparatus was used to carry out the tests.

The board is therefore unable to see any particular technical effect of feature (ii) other than that the fluidity of the ink composition is maintained.

30. In view of the above, the objective technical problem is regarded as to maintain the fluidity of the ink composition.
31. The appellant took the view that the skilled person would have consulted the teaching of document D9 or document D1 in order to arrive at the invention as claimed.
 - 31.1 Document D9 relates to an inkjet printer with an ink chamber 7 from which ink flows through a plurality of heated pressure chambers 6 to the ejection nozzles 5 (Figure 11). The aim of document D9 is to prevent accumulation of ink bubbles on the ceiling of the printing head. This is solved by providing a circulation path 11 that discharges the bubbles through the ink feed path (paragraph [0098]). In order to "prevent the circulating current from causing trouble in the liquid ejection head" (paragraph [0098]), the circulation path 11 is spaced apart from the ink chamber 6 by means of a restricted communication passage 11b.

The board notes that the temperature of the ink composition in the ink chamber is not mentioned in document D9. Regarding the flow velocity in the ink chamber, the board is not convinced by the calculations carried out by the appellant. Dividing the ink circulation flow rate disclosed in paragraph [0180] through the sum of the cross-sectional areas of the main passage 11a and the communication passage 11b may very well yield an indication of the average flow velocity in the entire circulation path 11. Yet it is questionable what this means for the actual flow velocity in the ink chamber 7. But more importantly, there is no hint in document D9 that would prompt the skilled person to flow the ink during image recording *including* during stand-by.

- 31.2 Regarding document D1, the board concurs with the respondent that it discloses an inkjet recording apparatus which is not suitable for "phase change inks". Instead, the solvent concentration detector 104, the solvent addition apparatus 106 and the solvent tank 144 in Figure 3 imply that the prior art teaching is only directed to solvent-based inks. Taking further into account that paragraph [0020] of document D1 seems to dissuade from using UV-curable inks, combining the teachings of documents D2 and D1 would be at odds with what the skilled person would have done at the filing date. But even if such a combination were made, the appellant did not persuade the board that the specific disclosure of document D1 would have resulted in a finding of obviousness. The only temperature mentioned in document D1 is 55 °C (cf. paragraph [0099]), which is well outside the claimed temperature range. Furthermore, no passage of document D1 was cited by the appellant from which the board could conclude that the circulation of the ink between the non-ejecting nozzles

and the ink chamber is in any way continued during stand-by. Considering that the aim of document D1 is to optimise the prior art technology discussed in paragraph [0016] by *reducing* the amount of circulated liquid, the board sees merit in the respondent's argument that the statement "during printing" mentioned in the context of that paragraph also applies to the liquid circulation apparatus shown in Figure 3 of document D1 and thus suggests that the circulation is confined to the *active* printing mode (see also point 3. above).

32. In conclusion, the board judges that when starting from document D2 the subject-matter of claim 1 involves an inventive step within the meaning of Article 56 EPC.

(b) Starting from document D1

33. There was no dispute between the parties that the following features of claim 1 according to the main request are not disclosed by document D1: the ink composition comprises a photo-initiator, a polymerizable compound and a gelling agent, and during an image recording including during stand-by, the method comprises heat-keeping a temperature of the ink composition at 70°C - 140°C, and flowing the ink composition in the ink chamber at a flow rate of 1.0 - 3.0 m/min.
34. Apart from lacking solvents, the main advantage of radiation curable ink compositions lies in their fast drying (cf. paragraph [0003] of the patent). Regarding the second and third differences, their technical effects can be regarded as maintaining the fluidity of the ink composition (see points 28. and 29. above).

35. In the board's view, the respondent did not convincingly argue why the relationship between the first difference, on the one hand, and the second and third differences, on the other hand, is one of functional reciprocity. Heating and flowing an ink composition in the ink chamber are not measures that are reserved for radiation curable inks, as is clear from document D1. The differing features therefore give rise to two partial problems: to provide a suitable ink composition with improved drying characteristics and to maintain the fluidity of the ink composition.
36. As was noted in the context of point 31.2 above, paragraph [0020] of document D1 would have prompted the skilled person to disregard prior art solutions using UV-curable inks. The appellant counterargued that the potential issues associated with UV-curable inks in paragraph [0020] were actually overcome by the solution proposed proposed in paragraph [0115] of document D1. The appellant's argument is not persuasive, however. Paragraph [0115] reads as follows: "*...even if air bubbles become mixed into the common flow channel 52, it is possible to remove these air bubbles swiftly...*" (underlining by the board). Since the only other mention of the words "air bubbles" is in paragraph [0021] of document D1, there is no reason to assume that the solution of paragraph [0115] is directed to the UV-curable inks of paragraph [0020]. Instead, what is referred to in paragraph [0115] is the problem laid out in paragraph [0021] in connection with air dissolved in an (unspecified) ink. Given that the printer of document D1 is not compatible with the ink of documents D2 and D10, the board shares the respondent's view that the skilled person would not have been prompted to combine the method of document D1 with the teaching of any of those documents. Further

considering that document D9 fails to disclose radiation curable ink compositions, difference (i) is not obvious when starting from document D1. In view of this finding, the question of whether the second and third differences are obvious may be left open.

37. For those reasons, the subject-matter of claim 1 of the main request is also based on an inventive step when starting from document D1 (Articles 52(1) EPC and 56 EPC).

(c) Starting from document D2 in combination with document D3 - admittance

38. During the oral proceedings before the board, the appellant submitted for the first time an inventive step objection starting from document D2 in combination with the teaching of document D3. Regarding the exceptional circumstances that would justify the admission of this objection at such a late stage in the appeal proceedings the appellant referred to the discussion on the admittance of document D16.

39. In the written proceedings in appeal, document D3 was only referred to in support of the appellant's objection of insufficient disclosure in section 4 of their letter dated 18 October 2016. The appellant did not dispute that document D3 was not mentioned at all in any other context. The inventive step objection starting from document D2 in combination with the teaching of document D3 was therefore raised for the first time in the oral proceedings before the board and constituted an amendment to the appeal case, for which the provision of Article 13(2) RPBA 2020 applied (see point 21. above). In the discussion on the admittance of document D16 the board judged that the circumstances

that led to its late filing were not exceptional (see point 23. above). No further reasons were provided by the appellant for justifying the admission of the late-filed inventive step objection.

40. Accordingly, the board decided not to take the objection into account under Article 13(2) RPBA 2020.

(d) Starting from document D10 in combination with document D1 - admittance

41. In section 2.2.3 of the statement setting out the grounds of appeal the appellant had argued that the subject-matter of claim 1 of the patent as granted did not involve an inventive step when starting from document D1 in combination with the teaching of document D10. At the end of the section the following sentence was added:

"Alternatively, even if the skilled person would depart from D10, then the skilled person would arrive at a method falling within the terms of claim 1 by combining D10 and D1".

Section 2.2.4 contained a similar statement:

"Alternatively, when starting from ... D10 , then the skilled person would also arrive at a method for forming an inkjet image falling within the terms of claim 1".

42. The inventive step objection starting from document D10 was not brought up again until the oral proceedings before the board. It was not commented on by the respondent in their letters of reply nor by the board

in its communication pursuant to Article 15(1) RPBA 2020.

43. The board notes that the appellant failed to provide reasons in writing explaining how the person skilled in the art would proceed when starting from document D10 in order to arrive at the finding that the subject-matter of claim 1 according to the main request was obvious having regard to the teaching of document D1. Such reasons typically include factual considerations on the technical content of the different prior art documents. It is a direct consequence of the structured problem-solution approach that reversing the order of the documents considered results in a new objection most likely requiring different factual considerations (cf. T 140/15, Reasons 4.1.7). In the board's judgment, the appellant's reasoning starting from document D1 in combination with the teaching of document D10 cannot be transposed to an objection starting from document D10 in combination with the teaching of document D1 without further ado. Nor is the new objection self-explanatory.
44. Given the lack of substantiation in the written proceedings, the objection starting from document D10 did not become effective until it was presented in the oral proceedings before the board. It was therefore an amendment of the appeal case, which underlay the stringent limitations stipulated by Article 13(2) RPBA 2020 (cf. point 21. above).
45. The argument provided by the appellant that the consideration of document D10 as a starting point had to be seen in the context of the board's remark in point 25 of the communication pursuant to Article 15(1) RPBA 2020 with respect to radiation curable inks may have some merit. However, the decision under appeal

already included similar remarks in the context of the selection of the "closest prior art" (see points 6.2 and 6.3.1 of the reasons). The board is therefore unable to see how the appellant could have been taken by surprise when the board's preliminary opinion was issued, all the more so since section 2.2.2 of the statement setting out the grounds of appeal had already included an inventive step objection starting from a prior art document disclosing radiation curable inks, namely document D2. The appellant did therefore not provide any cogent reasons justifying exceptional circumstances.

46. Consequently the board did not admit the objection into the proceedings (Article 13(2) RPBA 2020).

(e) Conclusion

47. As no further inventive step objections were raised by the appellant, the board concludes that the subject-matter of claim 1 according to the main request involves an inventive step pursuant to Article 56 EPC.

Request for correction

48. In order to remove any discrepancy with the units "m/min" used in claim 1 and in the remaining part of the patent description, the respondent requested to correct the units "m/s" appearing in Tables 8 and 9 and in paragraph [0120] of that part of the patent description dealing with experimental data. As legal basis for such a correction Rule 139 EPC was invoked.
49. In decision G 1/10 (OJ EPO 2013, 194), the Enlarged Board of Appeal has held that a mistake made by an applicant in a document they have filed at any stage up

to and including the final approval by them of the text of their patent can be corrected before grant of the patent under Rule 139 EPC on request (cf. Reasons 9). If, on the other hand, an applicant does not draw any errors to the attention of the examining division and thus ensures their approval is limited to the correct text, then the responsibility for any errors remaining in that text after grant should be theirs alone, whether the error was made (or introduced) by them or by the examining division (cf. Reasons 11).

50. In the present case, the respondent had expressed their approval to the text of the patent including the description with the alleged incorrect units "m/s" in Tables 8, 9 and paragraph [0120] upon grant of the patent. Thereafter, the patent description together with the claims and the drawings became an integral part of the decision to grant the patent (cf. Reasons 3 and 5 of G 1/10). What was sought by the respondent with their request under Rule 139 EPC was thus actually the correction of an error in the granted version of the patent. Such a correction would have been a matter of Rule 140 EPC in that it related to a purported mistake in the decision taken by the examining division to grant the patent. However, Rule 140 EPC is not available to correct the text of a granted patent and a request for such a correction is inadmissible whenever made, including after the initiation of opposition proceedings (cf. Headnote 1 and Order of G 1/10). Consequently, the respondent's request for correction must be rejected.

51. As the alleged discrepancy of the units in the description of the patent was not pertinent for the outcome of the appeal proceedings in the present case, the board did not see any need to rule on the

admittance of the experimental data D14 in line with the respondent's auxiliary request.

Remittal to opposition division

52. Regarding the adaptation of the description to the claims of the main request, the board took the view that the required amendments to the description were of not inconsiderable scope. The parties did not object to a remittal. It is further noted that, in the context of Article 11 RPBA 2020, remittal of a case for adaptation of the description is not a remittal for "further prosecution" (see document CA/3/19, section VI, Explanatory remarks on Article 11, second paragraph; see also Supplementary publication 2 to OJ EPO 2020), such that no "special reasons" for the remittal need to be present. Under these circumstances, the board decided to exercise its discretion to remit the case to the opposition division under Article 111(1) EPC for the description to be adapted to the claims found allowable.

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 with the order to maintain the patent in amended form on the basis of claims 1 to 5 submitted as main request with the reply to the statement setting out the grounds of appeal and a description and drawings to be adapted.
3. The respondent's request for correction is rejected.

The Registrar:

The Chairman:



N. Schneider

P. Lanz

Decision electronically authenticated