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Datasheet for the decision of 13 July 2012

Case Number: T 2433/09 - 3.3.01

Application Number: 99918129.0

Publication Number: 1090079

IPC: C09D 11/00

Language of the proceedings: EN

Title of invention:
Radiation-curable compositions

Patentee:
Coates Brothers

Opponent:
Océ-Technologies B.V.

Headword:
Ink-jet inks/COATES BROTHERS

Relevant legal provisions:
EPC Art. 114(2), 56
RPBA Art. 13(1)

Keyword:
"Late-filed document - not admitted"
"Inventive step: no (all requests) - obvious composition within the teaching of closest prior art"

Decisions cited:
-

Catchword:
-

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Case Number: T 2433/09 - 3.3.01

D E C I S I O N
of the Technical Board of Appeal 3.3.01
of 13 July 2012

Appellant: (Opponent)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 9 November 2009 rejecting the opposition filed against European patent No. 1090079 pursuant to Article 101(2) EPC.

Composition of the Board:

Chairman: P. Ranguis
Members: L. Seymour
L. Bühler

Summary of Facts and Submissions

I. European patent No. 1 090 079 was granted on the basis of seventeen claims. Claim 1 as granted reads as follows:

"1. A vehicle for a hot melt ink-jet ink, the vehicle comprising from 35 to 98% by weight of a radiation curable material and a thickener, said vehicle being a thixotropic paste at 20°C, preferably also at 25°C, and said vehicle having a viscosity of less than 25 centipoise at at [*sic*] least one temperature in the range of from 40°C to 130°C."

II. An opposition was filed and revocation of the patent in its entirety requested pursuant to Article 100(a) EPC for lack of inventive step.

III. The following documents were cited *inter alia* during the opposition/appeal proceedings; it is noted that, in the present decision, citations relating to document (0) refer to the English translation thereof:

(0) JP-A-6 200 204 and English translation thereof provided by the respondent (then applicant) with letter of 6 July 2000

(1) EP-A-0 465 039

(3) US-A-5 531 817

(5) Coatings Technology Handbook, D Satas, Ed., Marcel Dekker Inc., 1991, pages iii, 4-11, 22-25, 38-41, 46, 47, 482, 483

(8) WO-A-97/11837

IV. The appeal lies from the decision of the opposition division rejecting the opposition. In its analysis of inventive step of the claims as granted, the opposition division identified document (1) as representing the closest prior art and defined the problem to be solved as lying in the control of the bleeding observed in the disclosed radiation-curable ink-jet inks. The opposition division was of the opinion that the claimed solution to this problem, namely, the provision of a vehicle having the combined characteristics of temperature-dependent viscosity and thixotropic behaviour, was not rendered obvious by the cited prior art.

V. The appellant (opponent) lodged an appeal against this decision and filed grounds of appeal.

VI. With its letter of reply dated 22 October 2010, the respondent (patentee) filed eight auxiliary requests.

VII. In a communication sent as annex to the summons to oral proceedings, the attention of the parties was drawn to issues arising under Article 123 regarding some amendments introduced in the auxiliary requests.

VIII. With letter dated 8 June 2012, the appellant filed document (8).

IX. With letter dated 13 June 2012, the respondent requested that document (8) not be admitted into the proceedings. In addition, amended auxiliary requests 1

and 6 to 8 were submitted to replace those previously on file, as well as additional auxiliary requests 9 to 14.

X. With a further communication of 18 June 2012, the board forwarded a copy of the complete English-language translation of document (0), which had originally been provided by the respondent (then applicant) with letter of 6 July 2000, during the international preliminary examination phase under PCT Chapter II of the application underlying the patent in suit.

XI. With letter of 4 July 2012, the respondent submitted experimental data to demonstrate that representative inks according to document (0) were solid at room temperature.

XII. During the course of oral proceedings held before the board on 13 July 2012, the respondent withdrew all its previous auxiliary requests on file and submitted replacement auxiliary requests 1 to 4 corresponding, respectively, to its earlier auxiliary requests 2, 4, 10 and 11 (cf. above points VI and IX).

Claim 1 of auxiliary request 1 differs from claim 1 as granted in that the amount of radiation-curable material in the vehicle has been specified to be "from 60 to 98% by weight".

Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that the amount of thickener is additionally specified to be "from 0.5% to 30% by weight".

Claims 1 of auxiliary request 3 and 4 mainly differ from claims 1 of auxiliary request 1 and 2, respectively, in the insertion of the following definition after "being a thixotropic paste at 20°C":

"having, at a temperature of 20°C and a shear rate of 20 s^{-1}, a viscosity (hereafter "the first measured viscosity") of at least 500 centipoise and, at the same temperature at a shear rate of 1,000 s^{-1}, a viscosity of no more than 300 centipoise, wherein, after application of shear at a shear rate of 1,000 s^{-1} for 60 seconds, the recovery time for recovery of the viscosity at 20 s^{-1} to return to a value the same as or higher than the first measured viscosity is no more than 60 seconds".

XIII. The appellant's arguments, insofar as they are relevant to the present decision, may be summarised as follows:

The appellant did not contest the admissibility of the experimental data or the auxiliary requests submitted by the respondent with letter of 4 July 2012 and at oral proceedings before the board, respectively (cf. above points XI and XII, respectively).

With respect to the question of admissibility of document (8), the appellant argued that it had not been retrieved in earlier searches because it was primarily concerned with three-dimensional printing methods, rather than ink-jet inks. In addition, document (8) was very voluminous, making it rather difficult to identify the pertinent passages. Only recently had the appellant come across document (8), as part of a search conducted in a different context, and recognised its *prima facie*

relevance to the present case. The appellant, in particular, pointed to the composition disclosed in Example 7 of Table II-B as potentially exhibiting thixotropic properties, and to the reference to thixotropy on page 8, lines 15 to 18.

In its assessment of inventive step with respect to claim 1 of the main request, the appellant started from document (0) as representing the closest prior art. According to this document, the hot-melt inks disclosed therein produced ink drops that remained on the recording paper in a half-ball shape. The problem to be solved could therefore be defined as lying in the provision of a vehicle for a hot-melt ink-jet inks having a higher gloss finish. Based on common general knowledge, the skilled person would have been aware of the fact that controlled mingling of the ink drops would achieve this goal. Having this in mind, the skilled person would look to document (3) and find a clear teaching therein that vehicles with thermally reversible gelling properties would provide a solution to the problem posed. In view of common general knowledge, it would be a matter of routine for the skilled person to select suitable thickeners such as waxes in appropriate concentration in order to put said teaching into practice.

In this context, the appellant disputed the respondent's contention that the thixotropic character of the vehicle contributed to the controlled spreading and mingling of the ink droplets. Significant cooling would only occur after impact on the substrate. Thus, by the time the ink returned to being a paste, it would no longer be subject to any shear stress and its

thixotropic character would therefore be irrelevant. Thus, it was the paste/gel property alone that allowed controlled mingling to occur.

The remaining advantages mentioned in paragraph [0009] of the patent in suit, namely, superior flow properties within the printer apparatus and curing properties, also could not support an inventive step. No evidence had been provided to render it credible that the former improvement had actually been achieved, and the latter was obvious in the light of the prior art and common general knowledge.

In attacking inventive step of the auxiliary requests, the appellant relied on the case presented for the main request.

XIV. The respondent's arguments, insofar as they are relevant to the present decision, may be summarised as follows:

The respondent argued that it would not be appropriate to admit document (8) into the proceedings, in view of the fact that it had been filed only one month prior to oral proceedings, together with misleading and unsubstantiated assertions as to its *prima facie* relevance.

Turning to the issue of inventive step of the main request, the respondent acknowledged that either of the documents (0) or (1) could potentially be regarded as constituting the closest prior art, but argued that the inks disclosed in the latter were representative of conventional radiation-curable ink-jet inks and

conceptually closer to the subject-matter claimed, owing to their high content of radiation-curable material. However, regardless of which of these documents was used as a starting point, an inventive step should be acknowledged.

In its analysis starting from document (0) as closest prior art, the respondent defined the problem to be solved as lying in the provision of an ink-jet ink affording better flow properties within the printer apparatus, and improved image quality and durability.

This problem had been solved by using a vehicle as defined in claim 1, comprising higher amounts of radiation-curable material and lower amounts of thickener such as to achieve a thixotropic paste.

Contrary to the assertions of the appellant, the thixotropic property was to be seen as a meaningful feature of the claimed vehicle, which had actually been found to provide the desired controlled droplet spread in the corresponding ink. This was in contrast to the freezing into discrete drops of the hot-melt inks according to document (0) on contact with the substrate.

The respondent emphasised that it was not possible to fully explain this observation on a scientific level, since many forces were at work in the very rapid and complex processes occurring on a microscopic scale. The respondent criticised the appellant's analysis in this context, since it was based on the incorrect assumption that the recovery of viscosity on impact was immediate and purely thermally driven. In fact, it would take some time for the viscosity of the thixotropic fluid

formed to rebuild. The respondent listed a number of forces that could be envisaged to drive flow during this period, such as, the residual kinetic energy of the impact, capillary forces, surface tension, and impacts from drops landing on top or overlapping with the previous drops.

Document (0) itself taught away from the claimed solution since the overriding disclosure of this document was of hot-melt inks containing predominantly wax or resin (70 to 90 wt%) with only small amounts of a radiation-curable material (10 to 30 wt%). As a result, these inks were solid at room temperature, as had been confirmed by the experimental data submitted by the respondent with letter of 4 July 2012 (see above point XI). Thus, document (0) did not in any way point to the claimed solution to the problem posed.

Moreover, the skilled person would not have considered any teaching of document (3) to be relevant since this document disclosed water-based inks of a fundamentally different nature to those disclosed in document (0). This document also failed to teach increasing the amount of radiation-curable material as a solution to the problem posed.

Similarly, no useful teaching could be derived from document (1), since this disclosed radiation-curable inks that were free-flowing liquids at room temperature and did not include a thickener.

With respect to the auxiliary requests, the respondent argued that the claimed vehicles had now been specified to comprise at least 60 wt% of the radiation-curable

material, and the amount of thickener that could be present was therefore no more than 40 wt%. In document (0), the maximum amount of radiation-curable material that could be present in the ink was 30 wt%, and the minimum amount of thickener 70 wt%. This represented a very significant difference, and not merely a routine step. These modifications clearly went against the teaching of document (0).

In auxiliary request 2, it was additionally specified that the amount of thickener in the vehicle was "from 0.5% to 30% by weight". Thus, this additional modification further distanced the compositions claimed from those disclosed in document (0), and rendered them even less obvious to the skilled person as a solution to the problem posed.

The respondent did not advance any additional arguments with respect to auxiliary requests 3 and 4.

XV. The appellant (opponent) requested that the decision under appeal be set aside and that the European patent No. 1 090 079 be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed (main request) or, alternatively, that the patent be maintained according to one of the first to fourth auxiliary requests submitted during oral proceedings of 13 July 2012.

XVI. At the end of the oral proceedings, the decision of the board was announced.

Reasons for the Decision

1. The appeal is admissible.

2. *Admission of document (8)*

Document (8) was submitted by the appellant only one month prior to oral proceedings before the board, and over two years after it had filed its statement setting out the grounds of appeal. Therefore, the filing of document (8) has led to an amendment to the appellant's case, which may be admitted and considered at the board's discretion, in accordance with Article 114(2) EPC and Article 13(1) of the Rules of Procedure of the Boards of Appeal. Account may *inter alia* be taken of whether a convincing case has been made as to why the document could not have been filed earlier and as to its *prima facie* relevance.

The only reason given by the appellant for filing a new document at such a late stage in the proceedings was that it had been difficult to retrieve. However, it is noted that document (8) relates to techniques for forming three-dimensional objects by means of various deposition modelling methods (page 1, lines 5 to 9). This is one of the areas of application of hot-melt compositions specifically mentioned in paragraph [0004] of patent in suit. The board does not therefore find it convincing that the skilled person involved in the present field of ink-jet inks would have been unaware of document (8), nor can it be recognised that the size or layout of this document is such that the skilled person would have any particular difficulty in

retrieving the information therein relating to the type of materials envisaged for the disclosed applications.

Moreover, it is not considered that the appellant has made a convincing case as to the relevance of document (8). In the sentence referred to by the appellant on page 8 of this document (lines 15 to 18), it is stated that "the building material (e.g. paint) may be thixotropic in nature". Thus, this passage does not clear relate to inks. Moreover, the appellant merely asserted that the composition of Example 7 may exhibit thixotropic properties, without providing any evidence therefore.

Thus, the board considers that insufficient justification has been provided by the appellant for the very late introduction of document (8). Consequently, the board decided to exercise its discretion not to admit document (8) into the proceedings.

3. *Main request - Inventive step (Articles 52(1), 56 EPC)*

3.1 The subject-matter of claim 1 relates to a vehicle for hot-melt ink-jet inks, which comprises a radiation-curable material and a thickener, which may be a wax (cf. patent in suit, paragraph [0029]). The former component is present in an amount of 35 to 98% by weight. The vehicle is a thixotropic paste at room temperature, and a jettable liquid at the operating temperature of the printer head (cf. patent in suit, paragraph [0014]).

3.2 In accordance with the problem-solution approach consistently applied by the boards of appeal, it is necessary, as a first step, to establish the closest prior art. This is normally a prior art document disclosing subject-matter aiming at the same objective as the claimed invention and having the most relevant technical features in common.

The respondent favoured document (1) as closest prior art. However, it is noted that the introductory section of the patent in suit itself gives greater weight to document (0), since this is the only document specifically cited therein (see paragraphs [0006] and [0009]).

Both documents (0) and (1) relate to the field of ink-jet inks. The compositions disclosed in document (1) have a high content of radiation-curable material. However, they are liquid at room temperature (cf. e.g. claim 1), and there is no reference to the presence of a thickener in this document. In contrast, the inks according to document (0) are hot-melt inks, and comprise both a radiation-curable material and a thickener, referred to as "ultraviolet ray setting resin" and "wax and resin whose melting point is 40-70°C", respectively (cf. e.g. page 1, "Request 1").

Consequently, in view of its greater similarity with the claimed subject-matter, the board considers, in agreement with the appellant, that document (0) represents the closest prior art.

3.3 As outlined in the previous section, document (0) relates to hot-melt ink-jet inks, which are radiation curable.

In the introductory section of document (0) entitled "Conventional Technology", the disadvantages of the prior art ink-jet inks are highlighted. In particular, it is disclosed that "water-colour and oil-colour inks are liquids at room temperature" and that "therefore, bleeding often occurs when printing on recording papers and printing density is often not sufficient" (paragraph [0004]). In the following paragraph, various hot-melt inks are listed and said to suffer from the disadvantages of having high melting points (page 1, bottom). In the last two sentences of paragraph [0005], some UV curable inks are described as providing high-speed hardening, but being liquid at room temperature. Finally, a hot-melt recording material based on metal soap is disclosed which is said to be slow to harden after fixation (paragraphs [0006] and [0008]).

In order to overcome these disadvantages (cf. paragraphs [0009], [0011] and [0027]), document (0) proposes the following compositions (see page 1, "Request 1", and also paragraph [0010]):

"Hot melt ink, which is solid or semi-solid at room temperature, contains wax and resin whose melting point is 40-70°C, also contains ultraviolet ray setting resin which hardens by ultraviolet ray irradiation".

Under the heading "Example" (see paragraph between paragraphs [0011] and [0013]), a hot-melt ink is disclosed consisting of "70-90 weight % of wax and

resin whose melting point 40-70°C; 10-30 weight % of prepolymer and monomer; 0.1-3 % of photo polymerization initiator; 1-5 weight % of dyestuff/pigment".

Suitable components are elaborated in paragraphs [0013] to [0018].

Finally, an example of the manufacture of a specific ink, and the use thereof in a printing process are disclosed in paragraphs [0019] to [0026]. The ink employed consists of 80 wt% paraffin wax, 18 wt% polyester acrylate, 1 wt% of a specific initiator and 1 wt% carbon black. The viscosity of the ink at room temperature may be adjusted "by adding softening solvent or dispersion agent or combination of those" (paragraph [0020]). The ink is supplied to the printing head in the solid state, and then heated to become liquid, before being ejected from the nozzle (paragraph [0024]). The emitted ink drop remains on the recording paper in the half-ball shape, and is set and fixed by UV irradiation (paragraphs [0025] and [0026]).

3.4 As the next step according to the problem-solution approach, it is necessary to determine the problem which the claimed invention addresses and successfully solves in the light of the closest prior art.

3.4.1 The respondent defined the problem to be solved in view of document (0) as lying in the provision of an ink-jet ink affording better flow properties within the printer apparatus, and improved image quality and durability.

The solution as defined in claim 1 of the patent in suit relates to a vehicle for a hot melt ink-jet ink

characterised in its higher content of radiation-curable material and lower content of thickener, and being a thixotropic paste at 20°C.

3.4.2 The board would like to emphasise in this context that the patent in suit itself does not contain a single example of a printing process employing the claimed vehicles or inks, nor has any such data been supplied by the respondent in the present opposition/appeal proceedings. Thus, **no evidence has been provided that any of the alleged advantages have actually been achieved** in comparison with the inks according to document (0) or any other prior art.

Any positive assessment in this respect can therefore only be based on common general knowledge and the known properties of the components of the claimed compositions.

3.4.3 Concerning the alleged advantage of improved flow properties within the printer apparatus, the appellant disputed that this had been plausibly demonstrated. Indeed, according the printing process disclosed in document (0), at the operating temperature of the printing apparatus, the ink is in a liquid state in the printer head (cf. paragraph [0024]), and therefore possesses good flow properties. Therefore, it does not appear to be credible that any advantage in this respect would be observed by employing the present vehicle in the printer apparatus disclosed in document (0).

3.4.4 The remaining two advantages relied on by the respondent were improved print quality and durability.

In view of the fact that the appellant explicitly acknowledged that these two advantages could be regarded as having been achieved by the subject-matter claimed, the board sees no reason to differ. Indeed, as explained in more detail under point 3.5.1 below, the paste-like consistency of the claimed vehicle at room temperature could be expected to allow controlled mingling of droplets to occur on printing, thus improving image quality. Additionally, it can be accepted that larger amounts of curable material in the ink would increase the durability of print.

3.4.5 Consequently, the board considers it to be plausible that the problem as defined above under point 3.4.1 has been successfully solved as far as the aspects of improved print quality and durability are concerned.

3.5 It remains to be investigated whether the proposed solution would have been obvious to the skilled person in the light of the prior art.

3.5.1 As becomes evident from the analysis under point 3.3 above, document (0) already discloses the principle of combining the advantages hot-melt and radiation-curable inks by formation of inks comprising "wax and resin whose melting point is 40-70°C" and "ultraviolet ray setting resin". On heating, the inks become liquid and jettable, and at room temperature they return to their initial "solid or semi-solid" state (see page 1, "Request 1").

Through the reference to "semi-solid", the skilled person would already derive the clear teaching that a range of consistencies may be tolerated in the inks

according to document (0). Further confirmation thereof can be found in paragraph [0020], wherein it is suggested that the viscosity of the ink at room temperature may be adjusted, as need demands.

It must be emphasised in this context that, starting from the solid ink composition specifically exemplified in document (0) and faced with problem of improving image quality and durability, **the skilled person would have had at his disposal the same common general knowledge as that relied on above under point 3.4.4**.

Thus, as outlined above under point 3.4.4, the skilled person would have been aware of the fact that a vehicle having a semi-solid or paste-like consistency would allow controlled mingling of droplets to occur. This is also derivable from document (0) itself, which discloses that liquid inks suffer from colour bleed (paragraph [0004]), whereas no spread of the ink droplets occurs in the exemplified solid inks (paragraph [0025]). It follows that a substance having an intermediate viscosity behaviour, between that of a liquid and a solid, would be expected to provide the required intermediate extent of mingling of droplets, and thus provide a solution to the problem of image quality.

Moreover, the skilled person would have been aware of the properties imparted by the various components of the ink according to document (0). Thus, the known purpose of the radiation-curable component in ink-jet inks is to provide a hardened film when subjected to an external energy source (see e.g. document (0), paragraph [0027], and also document (1), column 2,

lines 27 to 32). Therefore, as outlined above under point 3.4.4, greater amounts of curable material in the ink would be expected to increase the durability of print.

Similarly, the wax component in document (0) is known to impart the solid consistency of the ink at room temperature (cf. e.g. document (0), page 1, second paragraph).

In view of the above, it would be within the normal routine of a skilled person, and within the teaching of document (0), to adapt the exemplified ink composition in order to achieve the optimum balance of properties required for achieving image quality and durability, namely, by decreasing the amount of wax, in order to produce a product that was semi-solid at room temperature, and by increasing the amount of radiation-curable material, in order to improve hardening.

3.5.2 The board cannot accept the respondent's argument that document (0) teaches away from the present solution.

In assessing the disclosure of document (0), the respondent concentrated on the preferred embodiments of this document and ignored the more general teaching that can be derived from the document as a whole. Thus, in claim 1 ("Request 1") of document (0) reproduced above under point 3.3, and in the description of the solution to the problem addressed (paragraph [0010]), there is no limitation as to the amounts of the components comprised in the composition. It cannot therefore be accepted that the teaching of this

document is limited to inks having a high content of wax and low content of radiation-curable material.

The respondent also referred to the first two paragraphs of document (0) in order to support a more limited reading thereof as being limited to solid inks. However, the board notes that these two paragraphs are to be found under the heading "Summary", and that it is not unusual for an abstract to only reflect preferred embodiments rather than the teaching of the document as a whole.

3.5.3 Finally, the respondent emphasised the importance of the thixotropic character of the claimed vehicle at 20°C in allowing controlled mingling of the droplets, and argued that this property was not suggested by the prior art.

A general definition of thixotropy can be found in the excerpts from the "Coatings Technology Handbook" filed as document (5) (page 7, bottom): "Thixotropy is a special case of pseudoplasticity. The material undergoes "shear thinning"; but as shear forces are reduced, viscosity increases at a lesser rate to produce a hysteresis loop".

Conflicting theories were provided by the appellant and the respondent as to the processes occurring on impact of the droplets on the substrate, and as to whether thixotropic character of the vehicle had a role to play therein. However, as conceded by the respondent, very rapid and complex processes are at work on a microscopic level during the printing and curing process. No conclusions can therefore be based upon

these submissions of the parties, which must be regarded as being based on pure speculation.

As already mentioned above under point 3.4.2, no data is available on file that would allow a conclusion in this respect. The viscosity values for a number of vehicles, measured at 25°C and at shear rates of 20 and 1000 s^{-1}, have been provided in the patent in suit (see Table in paragraph [0039]; cf. also paragraph [0013]). However, it has not been demonstrated that this data is of any relevance to the printing process and quality.

Consequently, as the facts on file stand, it cannot be acknowledged that the thixotropic property of the claimed vehicle contributes to an unexpected improvement in image quality on printing with respect to prior art compositions, beyond that which might be expected based on the fact that the vehicle is a paste (cf. above point 3.4.4).

Therefore, in the absence of any evidence to the contrary, the feature relating to the thixotropic character of the paste cannot be acknowledged as contributing to an inventive step, and can only be regarded as being a functional description of a property commonly observed in decorating vehicles loaded with rheology additives (cf. e.g. document (5), page 8, first sentence of third complete paragraph).

3.5.4 In view of the above analysis, the subject-matter of claim 1 of the main request is found to represent an obvious solution to the problem of providing of an ink-jet ink affording improved image quality and durability.

Since a decision can only be taken on a request as a whole, none of the further claims need to be examined.

Consequently, the respondent's main request is rejected for lack of inventive step of claim 1.

4. *Auxiliary requests - Inventive step (Articles 52(1), 56 EPC)*

In claim 1 of the auxiliary request 1, the minimum amount of radiation-curable material in the vehicle has been increased to 60 wt%. In claim 1 of auxiliary request 2, the amount of thickener is additionally defined as being "from 0.5% to 30% by weight".

The respondent submitted that these amendments further distanced the compositions claimed from that exemplified in document (0). However, as explained above under point 3.5.2, the teaching of document (0) is not restricted to its preferred embodiments. In view of the general disclosure thereof, it must be considered to lie within the bounds of routine experimentation of a skilled person to examine to what extent the amounts of known components having known properties may be adjusted in order to optimise desired properties, in the manner outlined above under point 3.5.1.

Therefore, the considerations concerning inventive step set out above under point 3 with respect to the main request are not affected by amendments to the definitions of the amounts of radiation-curable material and thickener.

The respondent did not submit any additional arguments in favour of inventive step for auxiliary requests 3 and 4. The board also cannot see how the introduction of a definition of thixotropy into the claims would affect the considerations outlined above for auxiliary requests 1 and 2.

Hence, the auxiliary requests are also rejected for lack of inventive step of their respective claims 1.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

G. Nachtigall P. Ranguis