

**Internal distribution code:**

- (A) [ - ] Publication in OJ  
(B) [ - ] To Chairmen and Members  
(C) [ - ] To Chairmen  
(D) [ X ] No distribution

**Datasheet for the decision  
of 27 January 2015**

**Case Number:** T 1912/10 - 3.3.01  
**Application Number:** 03789400.3  
**Publication Number:** 1578422  
**IPC:** A61K31/465, A61K9/14, A61K9/00  
**Language of the proceedings:** EN

**Title of invention:**

A PHYSICALLY AND CHEMICALLY STABLE NICOTINE AND  
MICORCRYSTALLINE CELLULOSE CONTAINING PARTICULATE MATERIAL

**Patent Proprietor:**

NicoNovum AB

**Opponent:**

Fertin Pharma A/S

**Headword:**

MCC-nicotine particulate material/NICONOVUM

**Relevant legal provisions:**

EPC Art. 123(2)  
RPBA Art. 12(2), 12(4), 13(1)  
EPC 1973 Art. 83, 84, 54(1), 56

**Keyword:**

Newly filed documents - admitted  
Auxiliary request 3 - admitted  
Main request, auxiliary requests 1, 2: Inventive step (no)  
Auxiliary request 3: added matter (yes)

**Decisions cited:**

T 0713/01, T 0453/04



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

European Patent Office  
D-80298 MUNICH  
GERMANY  
Tel. +49 (0) 89 2399-0  
Fax +49 (0) 89 2399-4465

Case Number: T 1912/10 - 3.3.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.01**  
**of 27 January 2015**

**Appellant:** Fertin Pharma A/S  
(Opponent) Dandyvej 19  
DK-7100 Vejle (DK)

**Representative:** Hoffmann Eitle  
Patent- und Rechtsanwälte PartmbB  
Arabellastraße 30  
81925 München (DE)

**Respondent:** NicoNovum AB  
(Patent Proprietor) Järnvägsgatan 13  
252 24 Helsingborg (SE)

**Representative:** Chas. Hude A/S  
H.C. Andersens Boulevard 33  
1780 Copenhagen V (DK)

**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
12 July 2010 concerning maintenance of the  
European Patent No. 1578422 in amended form.**

**Composition of the Board:**

**Chairman** A. Lindner  
**Members:** L. Seymour  
T. Karamanli

## Summary of Facts and Submissions

- I. European patent No. 1 578 422 was granted on the basis of fifty-eight claims. Claim 1 reads as follows:

"A nicotine-containing particulate material for release of nicotine, the material comprising a combination of nicotine or a pharmaceutically acceptable salt, complex or solvate thereof and a microcrystalline cellulose, the particulate material - when tested in an *in vitro* dissolution test - releasing at least 90% w/w such as, e.g. at least 95 % w/w of the nicotine or the pharmaceutically acceptable salt, complex or solvate thereof within at the most about 30 min such as, e.g., at the most about 25 min, at the most about 20 min, at the most about 15 min, at the most about 10 min, at the most about 7.5 min, at the most about 5 min, at the most about 4 min, at the most about 3 min or at the most about 2 min."

- II. Revocation of the patent in suit was sought pursuant to Articles 100(b) and 100(a) EPC (lack of novelty and inventive step).

- III. The following documents were cited *inter alia* during the opposition/appeal proceedings:

(1) GB-A-2 227 659

(3) US-A-2001/0016593

(9) Experimental report dated 17 August 2008, filed with patentee's letter dated 25 September 2008

(10) Experimental report dated 2 December 2009, filed with patentee's letter dated 2 December 2009

(11) US-A-5 362 496

(12) US-B-6 280 761

(13) US-A-4 806 356

(14) US-B-6 586 023

(14a) WO 00/35295

IV. The appeal lies from the interlocutory decision of the opposition division to maintain the patent in suit in amended form, based on auxiliary request 1 filed at oral proceedings on 2 February 2010. Claim 1 of this request differs from claim 1 as granted in the insertion of the following text at the end of the claim:

"the nicotine or the pharmaceutically acceptable salt, complex or solvate thereof being retained inside voids in the microcrystalline cellulose, the nicotine or the pharmaceutically acceptable salt, complex or solvate thereof having been introduced into the voids while being dissolved in a hydrophilic solvent, i.e. water or alcohol or mixtures thereof".

V. The opposition division considered that, account being taken of the amendments made, the patent and the invention to which it related met the requirements of the EPC.

In particular, the product-by-process feature introduced into claim 1 was found to impart novelty to the subject-matter claimed. With respect to the issue of inventive step, the opposition division defined the

problem to be solved, starting from document (3) as closest prior art, as lying in the provision of a further nicotine preparation for oral application that was particularly stable. The data in the patent in suit credibly demonstrated that the claimed subject-matter, wherein microcrystalline cellulose (MCC) had been used as a carrier instead of filter paper, provided a solution to the problem posed. Document (1) did not point to said solution since it taught that nicotine would only be stable together with an oil.

VI. The appellant (opponent) lodged an appeal against this decision, and filed documents (11) to (14) with its statement of grounds of appeal.

VII. With its reply dated 14 June 2011, the respondent (patentee) filed a main request and two auxiliary requests.

With its letter dated 19 December 2014, the respondent submitted two further auxiliary requests.

VIII. Oral proceedings were held before the board on 27 January 2015.

At the beginning of these proceedings, the appellant submitted document (14a).

During the course of proceedings, the respondent replaced its previous requests (see above point VII) with a main request, and four auxiliary requests. Subsequently, the third and fourth auxiliary requests were replaced by an auxiliary entitled "New Third Auxiliary Request".

Claim 1 of the main request differs from that of the first auxiliary request considered in the decision under appeal (cf. above points I and IV) in the insertion of the feature "and the solvent having been removed" at the end of the claim.

Claim 1 of the first auxiliary request is identical to that of the main request.

Claim 1 of the second auxiliary request differs from that of the main request in the limitation of the release profile to read "releasing at least 90% w/w of the nicotine or the pharmaceutically acceptable salt, complex or solvate thereof within at the most about 10 min".

In the third auxiliary request, claim 1 of the second auxiliary request is further restricted by addition of the feature "wherein the concentration of nicotine or the pharmaceutically acceptable salt, complex or solvate thereof in the particulate material is at the most about 8% w/w, and the concentration being calculated as the nicotine base".

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

The appellant argued that documents (11) to (14) and (14a) should be admitted into the proceedings. Documents (11) to (14) had been filed at the first opportunity, namely, with the statement of grounds of appeal, in response to amendments filed during oral proceedings before the opposition division. The respondent had been granted a time extension to reply to the statement of grounds of appeal, and had been in a position to fully consider the newly filed documents

in its reply. The appellant acknowledged that document (14) was published after the earliest priority date of the patent in suit; however, the family member document (14a) was readily identifiable as prior art under Article 54(2) EPC, and had been cited and discussed by the respondent in its reply.

With respect to the subject-matter of claim 1 of the main request, the appellant raised an objection under Article 123(2) EPC, arguing that it was improper to delimit claims on the basis of passages disclosing a theory as to how the alleged invention worked. Furthermore, the newly introduced feature "retained in voids" gave rise to objections under Article 84 EPC, since it was unclear whether all or only some of the nicotine was located in the voids. The fact that no method had been disclosed as to how this could be directly established also gave rise to objections pursuant to Article 100(b) EPC. Moreover, the claimed subject-matter could not be realised over its whole scope. In this context, the appellant pointed to Table 2 of the patent in suit which demonstrated that, at nicotine concentrations of above 8%, the MCC materials lacked stability; the same was true of the combination of Avicel PH-102 and nicotine base as disclosed in Table 1. Claim 1 also defined an open-ended range with respect to the release rate *in vitro*, and therefore covered compositions with instantaneous and complete release. There was no disclosure as to how such a release profile could be obtained for nicotine salts, which had been acknowledged and demonstrated to be associated with slow release.

The appellant further argued that the subject-matter of claim 1 of the main request lacked novelty with respect to document (11). This document disclosed lozenges for



transmucosal administration of nicotine to satisfy transient craving. In the paragraph bridging columns 17 and 18, a preferred embodiment was disclosed in which the nicotine was dispersed in an absorbent excipient, such as Avicel microcellulose. A corresponding embodiment was exemplified in Example 32. The terminology used, namely, "absorbent", "absorption" and "adsorbed", indicated that most of the nicotine was taken up into the material used and thus retained in the voids, consistent with the respondent's submission that the external surface of MCC particles was negligible with respect to their internal surface. Moreover, in view of the function of the lozenge in delivering nicotine rapidly to the oral cavity, it stood to reason that the nicotine particles comprised therein must also exhibit the required fast release properties. Based on these technical considerations, combined with the disclosure of document (11), a strong case had been made that the particles exemplified in document (11) fell within the scope claimed. The present product-by-process feature had been introduced from the description during the first-instance oral proceedings. Under these circumstances, the appellant submitted that the burden for showing that this feature established novelty rested with the respondent. Decision T 713/01 was cited in support of this position. The appellant stated that it no longer wished to rely on document (12) for its novelty attack since the disclosure therein did not contribute any additional information to that of document (11).

In its analysis of inventive step, the appellant started from document (11) as closest prior art. No evidence had been provided to support an advantage of the claimed particles with respect to those disclosed in document (11). In particular, the alleged enhanced

stability had not been demonstrated. In fact, as indicated previously in the submissions on insufficiency of disclosure, the patent in suit rather pointed to stability problems with the claimed particles under certain circumstances, such as at higher nicotine concentrations. Therefore, the problem to be solved was to be seen as lying in the development of an alternative composition for the delivery of nicotine. No inventive step could be associated with the use of "water or alcohol or mixtures thereof" in the manufacturing process, since this measure was suggested in the prior art. Thus, it was already known from document (3) that nicotine could be deposited onto a cellulose material in the form of a solution in water. Similarly, document (13) taught the use an alcohol to dissolve nicotine prior to mixing with an absorbent material. Finally, document (14a) disclosed a general procedure for the application of active agents, including nicotine, to an absorbent, involving spraying solutions in water or alcohol. In example HH, the absorbent used was a MCC powder.

No additional submissions were made for claim 1 of the first auxiliary request, since this was identical to claim 1 of the main request.

With respect to the amendments to claim 1 of the second auxiliary request, the appellant argued this gave rise to an objection under Article 123(2) EPC, since there was no basis in the application as originally filed for the combination requiring the release of "at least 90% w/w" in conjunction with the time limit of "within at the most about 10 min", and particularly not together with the product-by-process feature introduced from the description.

The appellant further submitted that the limitation to faster release rates did not alter the analysis put forward for the main request. The fact remained that an unexpected advantage had not been demonstrated with respect to the closest prior art document (11). It was also not legitimate to include the property of fast release in the definition of the problem to be solved, since this property had been defined as a feature of the claim. Moreover, the particles according to document (11) already exhibited this property, and no advantages had been demonstrated in this respect. Therefore, the problem to be solved remained unchanged, as did the reasoning with respect to inventive step.

The appellant disputed the respondent's analysis of document (14a). Although the focus therein was on caffeine, nicotine was also specifically singled out in claim 25 as a preferred active agent. Moreover, the teaching of document (14a) was not confined to materials having delayed release, but generally related to the physical modification of active agents in order to achieve various release rates, including fast release. As confirmed in the passage starting on page 5, line 30, the exact release profile would depend on the solubility of the active agent. Given that nicotine was more soluble than caffeine in water and alcohol, the skilled person would expect faster release for the former.

Regarding the third auxiliary request, the appellant requested that this should not be admitted into the proceedings, owing to the fact that it had been filed at a very advanced stage of the oral proceedings before the board. Since the main arguments had remained the same throughout the appeal proceedings, the amendments undertaken could not be seen as being occasioned by a

surprising development in the appeal proceedings. In addition, the amended claims were *prima facie* not allowable.

The requirements of Article 123(2) EPC were not fulfilled for claim 1 of this request. In addition to the objections raised previously for claim 1 of the second auxiliary request, a further selection had been undertaken with respect to the specific value of "at the most about 8% w/w" for the load ratio. There was no basis in the application as originally filed for the claimed combination of features.

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

The respondent argued that documents (11) to (14) and (14a) should not be admitted into the proceedings since they were late-filed, in particular document (14a). In addition, they were not *prima facie* relevant or more pertinent than those already on file, and could not be seen as a legitimate response to the amendments made during oral proceedings before the opposition division.

The respondent further submitted that the amendments to claim 1 of the main request did not give rise to objections under Articles 123(2) or 84 EPC. A clear structural feature had been introduced defining the location of the nicotine, namely, inside the voids of the MCC, and the product-by-process feature defined how this could be achieved. From the reference to "the nicotine", it was clear that substantially all the nicotine was present within the voids. The feature "retained inside voids" imposed an implicit limitation on the amount of nicotine that could be loaded. Any

nicotine on the outer surface of the particles would only be present in negligible amounts. Within the context of the patent in suit, the feature in dependent claim 6 that "at least part of the nicotine ... is adsorbed to the microcrystalline cellulose" clearly referred to adsorption to the inner surface of the particles.

The location of the nicotine could be established without difficulty, for example, by means of stability tests, or electron microscopic examination. The colour of the particles also differed according to whether the nicotine was inside the voids or coated on the outside. The further objections raised under Article 100(b) EPC were also not convincing. No stability requirements were defined in claim 1. Moreover, means had been disclosed in the patent in suit enabling the skilled person to achieve release rates within the whole range claimed. It was not a requirement for sufficiency of disclosure that this feature must be attainable for each and every possible combination of components falling within the claim.

On the question of novelty, the respondent submitted that, in the decision under appeal, the product-by-process requirement had been found to be a clear distinguishing feature. Indeed, the dissolution of the nicotine in a hydrophilic solvent increased affinity to MCC, and allowed distribution of the solution within the voids by means of capillary forces. The structural impact of this process on the resulting particulate material was to shield the nicotine from the environment, as had been demonstrated by means of documents (9) and (10). The mixing process according to document (11) took place in the absence of solvent, and would not therefore produce the same effect as that

disclosed in the patent in suit. The appellant had not discharged its burden of proof to substantiate its assertions to the contrary.

In its assessment of inventive step, the respondent also started from document (11) as closest prior art. The problem to be solved was to be seen as lying in the provision of a composition having enhanced stability. It had been shown in the patent in suit and in documents (9) and (10) that the particulate material as defined in claim 1 of the main request, having the nicotine shielded in the voids of the material, exhibited high stability under challenging conditions. This conclusion could not be put in doubt by the data in Tables 1 or 2 of the patent in suit. The results of Table 1 were acceptable within the error margins of measurement. Moreover, according to Table 2, high stability was obtained at load ratios of about 8% w/w, which corresponded to the implicit limit imposed by the feature "retained inside voids", for the exemplified qualities of MCC. In contrast, it could be seen from column 21, lines 52 to 57, that the lozenges according to document (11) required packaging in order to maintain nicotine stability.

None of the cited prior art hinted at the claimed solution to the problem posed. In document (11) itself, the use of solvents was avoided when applying nicotine to MCC, and, in the preferred embodiments, the volatility of the nicotine was reduced by forming an inclusion complex with  $\beta$ -cyclodextrin. Moreover, the skilled person would not have considered document (3) to be relevant since it related to nicotine absorbed onto a completely different type of carrier material, namely, filter paper. Similarly, in document (13), lozenges were prepared with an inert filler material,

and there was no mention of any interaction between the filler and the applied product. Finally, the main emphasis in document (14a) was on compositions containing caffeine; nicotine was only disclosed in a long list of possible active ingredients. MCC was also only mentioned in one example, and not in combination with nicotine. Thus, the focus of document (14a) was neither on nicotine nor MCC, and there was no pointer to combine the two in order to enhance stability.

With respect to the objection under Article 123(2) EPC raised with respect to claim 1 of the second auxiliary request, the respondent submitted that this was not to be regarded as a two-list situation. The value of "at least 90% w/w" was mandatory in claim 1 as originally filed, and the second value of "at least 95% w/w" only an exemplification thereof. The amendment therefore merely concerned the limitation to a single option for the time limits appearing in the same claim.

Turning to the question of inventive step, the respondent emphasised that the release profile feature in claim 1 had now been restricted to a time limit of "within at the most about 10 min", in conformity with values that had been obtained in Table 3 of the patent in suit. The problem to be solved could therefore be defined as lying in the provision of a composition allowing for fast release of nicotine and enhanced stability. It could not be derived from document (11) that the MCC/nicotine particles disclosed therein exhibited either of these properties. In particular, the release rates disclosed in document (11) related to lozenges and did not necessarily reflect the properties of the constituent particles.

The skilled person would never have contemplated the formulations of document (14a), when seeking nicotine formulations in which release should be sufficiently rapid to allow nicotine to be taken up by the mucosa in the oral cavity. Indeed, the overall teaching of this document related to a coated chewing gum product designed to deliver the active substance to the intestine, and taught that the use of a porous absorbent matrix resulted in a "delayed release of caffeine or other active agent". The purpose of absorption in example HH was to reduce the bitterness of caffeine by delaying release.

Regarding the third auxiliary request, the respondent argued that it should be admitted into the proceedings, since it had been filed as a direct response to the discussions during oral proceedings, and merely incorporated a feature that had already been present in the previous fourth auxiliary request, now withdrawn. The amendment undertaken could not therefore have taken the appellant by surprise.

As regards the basis in the application as originally filed for the subject-matter of claim 1 of the third auxiliary request, the respondent referred to claims 1 and 4, in combination with page 6, lines 15 to 20 of the application as originally filed. The incorporation of the feature defining the concentration of nicotine in the particulate material as being "at the most about 8% w/w" from claim 4 was allowable owing to its dependency on claim 1. The release profile and the load ratio would be identified by the skilled person as being independent variables, and all combinations thereof covered by the relevant claims were to be considered as having been disclosed. The requirements



of Article 123(2) EPC must therefore be considered to be fulfilled.

- 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 in amended form on the basis of the claims of the Main Request, or, alternatively, on the basis of the claims of the First Auxiliary Request, the Second Auxiliary Request or the New Third Auxiliary Request, all filed during oral proceedings of 27 January 2015.

- XII. 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 documents (11) to (14) and (14a)*

In its interlocutory decision, the opposition division maintained the patent in amended form based on auxiliary request 1 filed during oral proceedings. It is clear from the reasoning in the contested decision that the newly added product-by-process feature, whereby the nicotine is introduced into the voids of the microcrystalline cellulose (MCC) while being dissolved in "water or alcohol or mixtures thereof",

played a crucial role in the opposition division's assessment of novelty and inventive step. The filing of documents (11) to (14), which disclose various processes for combining nicotine with further excipients, can therefore be considered to be an appropriate reaction to the findings in the appealed decision. Moreover, these documents were filed at the first opportunity, namely with the statement of grounds of appeal, in accordance with Article 12(2) of the Rules of Procedure of the Boards of Appeal (RPBA).

Although document (14) is published after the earliest priority date of the patent in suit, its family member document (14a), which is prior art within the meaning of Article 54(2) EPC, was identified by the respondent in its reply to the statement of grounds of appeal dated 14 June 2011 (see page 2, penultimate paragraph). Therefore, although copies of document (14a) were first provided by the appellant at oral proceedings before the board, both parties had clearly been aware of its existence and content for some years.

In view of the above considerations, documents (11) to (14) and (14a) were admitted into the proceedings (Articles 12(2), (4) and 13(1) RPBA).

3. *Admission of the new third auxiliary request*

The main request and four auxiliary requests initially submitted by the respondent during oral proceedings before the board (cf. above point VIII) were based on previously filed requests; the additional amendment thereto merely consisted in the insertion of the feature "and the solvent having been removed", in direct response to a formal objection raised by the board for the first time during the oral proceedings.

The new third auxiliary request, subsequently filed to replace said third and fourth auxiliary requests, merely differs from the latter in the deletion in claim 1 of one of two features introduced from dependent claims. This straightforward amendment did not introduce any surprising element into the debate, and could be readily dealt with within the time available. Moreover, the board considers that the limitation to the second of said two features can be seen as a legitimate reaction to recurring objections raised by the appellant at oral proceedings with respect to the stability of the claimed particles at nicotine concentrations of higher than "about 8% w/w".

Under these circumstances, the board, exercising its discretion under Article 13(1) RPBA, decided to admit the new third auxiliary request into the proceedings.

4. *Main request, claim 1*

4.1 *Article 123(2) EPC*

The basis for present claim 1 can be found in claim 1 in combination with page 6, lines 15 to 25 of the application originally filed.

The appellant criticised the speculative nature of the vocabulary used in the cited passage of the description. However, this objection concerns the question of whether the product disclosed can actually be obtained, which is a matter to be addressed under Article 83 EPC 1973 (see point 4.3 below).

It is therefore concluded that the amendments do not give rise to any objections pursuant to Article 123(2) EPC.

4.2 *Article 84 EPC 1973*

The product-by-process feature introduced into claim 1 from the description (cf. above points IV and VIII) clearly specifies the location of "the nicotine or the pharmaceutically acceptable salt, complex or solvate thereof" to be within the voids of the MCC carrier, and the means by which such a product is obtainable.

The main objection raised by the appellant was that this feature introduced ambiguity concerning the proportion of nicotine required to be within the voids. However, the board is satisfied that the reference to "the nicotine" makes it clear that substantially all the nicotine present is within the voids, and that any amounts on the surface of the particles must be negligible. This reading of the claim is also consistent with paragraph [0023] of the patent in suit.

The further objection as to whether test methods were available to establish the location of the nicotine in the particulate material relates to the issue of whether the skilled person had at its disposal the means to reproduce the desired product, which is a question to be dealt with under Article 83 EPC 1973 (see point 4.3 below).

Hence, the board is satisfied that no lack of clarity arises from the amendments introduced into claim 1.

4.3 *Sufficiency of disclosure (Articles 100(b), 83 EPC 1973)*

4.3.1 Present claim 1 relates to a particulate material comprising "nicotine or a pharmaceutical acceptable

salt, complex or solvate thereof" and MCC, wherein the former is retained inside the voids of the latter, and having a specified release profile when tested in an *in vitro* dissolution test.

In order to assess whether the requirement of sufficiency of disclosure is fulfilled in the present case, it must be assessed whether the patent in suit as a whole provides sufficient information allowing a person skilled in the art, using his common general knowledge, to obtain the claimed product.

- 4.3.2 The patent in suit discloses methods for loading the the nicotine onto the MCC (see paragraphs [0067], [0068]). Details of suitable MCC qualities are given in paragraphs [0023] and [0024]. A test method for measuring *in vitro* dissolution profiles, and means for adjusting this are also described (see paragraphs [0010], [0036], [0038]), and exemplified (see paragraphs [0073], [0074]).

In view of this disclosure, the board sees no reason to doubt that the skilled person would be in a position to select appropriate combinations of ingredients and obtain the claimed product having a release profile within the claimed range.

- 4.3.3 The appellant's arguments cannot alter this assessment for the following reasons:

The respondent indicated a number of direct and indirect means that could suitably be used to establish whether the nicotine was distributed within the voids or on the surface of the particles, including visual examination or electron microscopy. The board therefore sees no reason to doubt that appropriate methods were

available to the skilled person from his common general knowledge.

Concerning the argument of the appellant that the claimed subject-matter could not be realised over its whole scope, it is noted that the stability of the product is not included as a feature characterising the subject-matter under consideration, and the question as to the exact degree to which this property is attained does not therefore arise under Article 83 EPC 1973. Concerning the release properties, it is not a requirement under Article 83 EPC 1973 that the full range of claimed values must be achievable for each and every combination of constituents. Rather, the patent in suit as a whole must place at the disposal of the skilled person sufficient information on the relevant criteria for finding appropriate alternatives over the claimed range without undue burden. As outlined above in point 4.3.2, this criterion is fulfilled in the present case.

4.3.4 Consequently, the requirement of sufficiency of disclosure is considered to be met for the subject-matter of claim 1.

4.4 *Novelty (Article 52(1) EPC and Article 54(1) EPC 1973)*

A novelty objection was raised by the appellant based on Example 32 of document (11).

This example relates to the manufacture of a nicotine sublingual tablet. In the first step of the manufacturing method, Avicel PH 101 (an MCC) and Aerosil 200 (a colloidal silica) are blended, in proportions of 50.0 and 5.0 mg/tablet, respectively. In a second step, nicotine (2.0 mg/tablet) is "adsorbed

onto the blend obtained in Step 1, which acts as a carrier", by means of a mixing process that results in a homogeneous dispersion.

The parties provided contradictory theories with respect to the expected properties of the product of said second step, in particular, regarding the distribution of the nicotine in the MCC carrier. However, the information provided in Example 32 does not allow an unambiguous conclusion in this respect. It is noted in this context that the term "adsorbed" appearing therein, although normally designating a surface phenomenon, may also be read as referring to adsorption to the internal surfaces of the particles, in line with the usage in the patent in suit (cf. above point X, paragraph 3, last sentence). The corresponding general paragraph bridging columns 17 and 18 refers to "absorbent excipient" and "absorption", but also does not provide any precise information as to the exact nicotine distribution intended by this terminology.

It was a matter of dispute between the parties as to whether the burden of proving novelty of the claimed subject-matter with respect to document (11) rested with the appellant or the respondent. However, as a matter of principle, the burden of proof is upon the party making an allegation. In the present case, it is the appellant who is challenging the decision of the first instance to maintain the patent in amended form, and it is therefore the burden of this party to substantiate its novelty objection in a complete manner (see e.g. decision T 453/04, point 6.1.3 (b) of the Reasons).

The present situation is not comparable with that at issue in decision T 713/01, cited by the appellant,

since that decision is clearly concerned with the question of burden of proof in examination proceedings (cf. point 2.5.8 of the Reasons).

Therefore, in the absence of any evidence that the process according to Example 32 of document (11) results in a product falling within the scope of present claim 1, it is concluded that the appellant's novelty objection must fail.

4.5 *Inventive step (Article 52(1) EPC and Article 56 EPC 1973)*

4.5.1 Claim 1 of the main request relates to a particulate material, comprising nicotine or a pharmaceutical acceptable salt thereof, and a microcrystalline cellulose. This material is physically and chemically stable, and allows for rapid release and absorption of nicotine through the oral mucosa (see e.g. paragraphs [0008], [0009]). The corresponding pharmaceutical compositions can be used in the treatment of nicotine-related disorder, such as tobacco dependence (see e.g. paragraphs [0063], [0064]).

4.5.2 At oral proceedings before the board, both parties started from document (11) as closest prior art. The board also considers that this document represents a suitable starting point for the assessment of inventive step.

Document (11) pertains to methods and therapeutic systems for treating conditions responsive to nicotine therapy, and particularly for smoking cessation. Said methods comprise a first treatment by transdermal administration, and a second treatment with nicotine by transmucosal administration (column 4, line 65 to



column 5, line 10). In a preferred embodiment, the latter is achieved by means "oral administration (i.e., sublingual and buccal)" of dosage forms such as a lozenge, capsule, gum or tablet (column 16, lines 1 to 15), providing transient nicotine blood level peak from about 2 to 30 minutes, preferably from about 2 to 20 minutes, and more preferably from about 2 to 10 minutes, after the oral formulation is placed in the mouth (column 17, lines 36 to 42). According to a particularly preferred embodiment, a nicotine lozenge or tablet is held from 2 to 10 minutes in the mouth as it dissolves completely and releases nicotine into the mouth (column 24, lines 30 to 35). The transmucosal administration of nicotine provides for the rapid attainment of the transient levels of nicotine that mimic cigarette smoking and are required to alleviate nicotine craving (column 26, lines 16 to 20).

The manufacture of one such oral formulation, namely, a buffered nicotine sublingual tablet, is exemplified in Example 32 (column 33, line 35 to column 34, line 20). According to this example, as outlined above in point 4.4, nicotine is adsorbed onto a blend of Avicel PH 101 and Aerosil 200 (steps 1 and 2). This is then blended with further components and compressed into a tablet (Steps 6 to 8).

In the paragraph bridging columns 17 and 18, Avicel is listed as being an absorbent excipient. It is further stated that "Absorbent excipients are pharmaceutically acceptable substances that are capable 1) of reducing the volatility of the nicotine, for example, through absorption or by the incorporation of nicotine, such as in an inclusion complex, and 2) of being compressed into a lozenge or tablet."

4.5.3 In view of the closest state of the art, it must now be determined which problem the claimed invention addresses and successfully solves.

The respondent submitted a definition of the problem to be solved as lying in the provision of a composition having enhanced stability, and referred to the data in the patent in suit and in documents (9) and (10) as demonstrating that this problem had been solved. However, none of the data referred to provides a comparison with respect to the MCC/nicotine material disclosed in the closest prior art document (11). Indeed, as outlined above in point 4.5.2, document (11) discloses that absorbent excipients, such as Avicel, are capable of reducing the volatility of the nicotine, and there is no indication in Example 32 that stability problems are encountered with the corresponding dispersion. Therefore, there is no basis for assuming that the present material is in any way more stable than that disclosed in document (11).

As is well established in the case law of the boards of appeal, alleged but unsupported advantages cannot be taken into consideration in respect of the determination of the problem to be solved.

The problem to be solved in the light of the closest state of the art is therefore defined as lying in the provision of an alternative composition for the delivery of nicotine.

4.5.4 The solution proposed in claim 1 relates to a material characterised in that the nicotine is retained within the voids of the MCC. As set out above in point 4.4, it is assumed for the purpose of this decision that the distribution of the nicotine in the MCC carrier

obtainable as the result of the process defined in present claim 1 is distinguishable from that prepared according to Example 32 of document (11).

Having regard to the experimental results reported in the patent in suit, the board is satisfied that the problem has been solved.

- 4.5.5 It remains to be investigated whether the proposed solution is obvious to the skilled person in the light of the prior art.

Starting from the compositions exemplified in document (11), the skilled person, seeking a solution to the problem defined above, would consult further documents dealing with the formulation of nicotine. Document (14a) is one such document, which generally relates to the production of chewing gum with physically modified active agents (claim 1), including nicotine (claim 25; see also page 7, lines 28 to 32; page 10, line 29 to page 11, line 3). According to one of the methods disclosed for physical modification, the active agent may be absorbed onto another component which is porous and become entrapped in the matrix of the porous component (page 15, lines 16 to 18). The general procedure for absorbing the active agent onto the absorbent involves spraying a solution of the active agent onto the powder, whilst the powder is mixed. Generally water is the solvent, but other solvents like alcohol can also be used. Spraying is stopped before the mix becomes damp. The still free-flowing powder is removed from the mixer and dried to remove the water or other solvent, and is then ground to a specific particle size (page 15, line 30 to page 16, line 8). One of the examples illustrating this process is Example HH, in which a solution of caffeine

is sprayed onto an MCC powder (page 43, lines 1 to 5, 12 to 15).

Hence, document (14a) specifically suggests the use of solutions in water and alcohol for loading active agents, including nicotine, onto absorbent materials, such as MCC. The skilled person, being aware of the solubility of nicotine in water and alcohol (cf. e.g. document (3), example 7; document (13), column 2, lines 17, 18), would also have had no doubt as to the suitability of such a process for loading nicotine onto MCC. It is therefore concluded that it would have been obvious for the skilled person, faced with the problem posed, to modify the process of document (11) according to the teaching of document (14a), thereby arriving at the subject-matter claimed without the exercise of inventive skill.

4.5.6 The respondent's arguments in favour of inventive step do not hold for the following reasons:

Packaging in order to maintain stability, as disclosed in document (11) (column 21, lines 52 to 57), does not imply that the lozenges in question are unstable, but only that packaging reinforces this property. Certainly, no conclusion can be drawn as to the stability of the nicotine particles according to Example 32 with respect to those claimed.

Furthermore, the fact that the incorporation of nicotine in an inclusion complex with  $\beta$ -cyclodextrin is one of the preferred embodiments according to document (11) (see e.g. column 17, lines 63 to 68) is not considered to be relevant, since as outlined above in point 4.5.2, document (11) also generally discloses and specifically exemplifies MCC as a suitable

absorbent, and this is therefore considered to be a suitable starting point for assessing inventive step.

Concerning the disclosure of document (14a), the focus is on compositions comprising caffeine. However, as outlined above in point 4.5.5, this document is also more general in its teaching, and specifically singles out nicotine as a suitable active agent. Moreover, although MCC is not specifically listed as an absorbent in the general section on pages 15 and 16, it clearly emerges from the disclosure on page 43, lines 1 to 5 in conjunction with lines 12 to 15, that MCC is envisaged as a suitable absorbent for use in the processes disclosed. Therefore, it is maintained that the skilled person would consider this document when seeking a solution to the problem posed.

4.5.7 Consequently, the main request is rejected for lack of inventive step of the subject-matter of claim 1.

5. *First auxiliary request, claim 1*

In view of the fact that claim 1 of the first auxiliary is identical to that of the main request, the same conclusion on inventive step applies (see above point 4.5).

6. *Second auxiliary request, claim 1*

6.1 *Article 123(2) EPC*

The appellant submitted that the juxtaposition of the specific values "at least 90% w/w" and "within at the most about 10 min" in amended claim 1 (cf. above point VIII) related to an unallowable combination of features. However, in claim 1 as originally filed, the

feature "releasing at least 90% w/w such as, e.g. at least 95 % w/w" cannot be viewed as a list, but rather is the disclosure of a mandatory value followed by a preferred value illustrative thereof. Therefore, no selection is undertaken in the deletion of "such as, e.g. at least 95 % w/w". Consequently, the choice of "within at the most about 10 min" merely concerns an allowable mono-dimensional restriction from the values originally listed in claim 1.

The further introduction of the product-by-process feature disclosed on page 6, lines 15 to 25 of the application originally filed is also not objectionable, since it is clear from this passage that this is the method by which the particulate material according to the invention is obtained.

Hence, claim 1 meets the requirements of Article 123(2) EPC.

6.2 *Inventive step (Article 52(1) EPC and Article 56 EPC 1973)*

- 6.2.1 In comparison with claim 1 of the main request, claim 1 of the second auxiliary request is characterised by the limitation of the release time to "within at the most about 10 min".

Concerning the problem to be solved, the respondent submitted that this should now be defined as lying in the provision of a composition allowing for fast release of nicotine and enhanced stability.

The board cannot accept this definition of the problem. Firstly, for the reasons set out above in point 4.5.3, it cannot be accepted that an enhanced stability has

been demonstrated. A similar objection arises with respect to the definition of the problem in terms of "fast release". In so far as this may imply an improvement over the closest prior art, no evidence has been provided that this has successfully been achieved. On the other hand, if "fast release" is to be understood as indicating suitability for oral transmucosal delivery, with release of nicotine within 10 minutes after being placed in the mouth, it is noted that the closest prior art sublingual tablet of Example 32 is also designed for this purpose, as set out above in point 4.5.2. Although the figure of "2 to 10 minutes" as disclosed in document (11) refers to the lozenge or tablet, the board agrees with the appellant that it must be fair to assume that the property of "fast release" is also to be shared by the particles within the tablet, since otherwise the overall function of the formulation would be negated. Therefore, the definition of the problem in terms of an alternative to the product of document (11) already incorporates the requirement of "fast release", and the inclusion thereof in the definition of the problem is therefore considered to be redundant.

Consequently, the problem to be solved remains that defined above in point 4.5.3 for the main request, namely, the provision of an alternative composition for the delivery of nicotine, and the assessment of inventive step presented under point 4.5 above applies to the subject-matter of claim 1 of the second auxiliary request *mutatis mutandis*.

6.2.2 The arguments additionally advanced by the respondent in this context with respect to document (14a) cannot change this conclusion for the following reasons:

The respondent argued that, in contrast to the patent in suit, the overall object in this document was to deliver the active substance to the intestine as a coated chewing gum product. However, it is noted that the possibility of formulating the present particles to achieve a range of release properties, including slow or delayed release, is also addressed in the patent in suit (see paragraphs [0036], [0060]). Therefore, it is maintained that the skilled person would regard the teaching of document (14a) regarding the production of physically modified active agents, as set out above in point 4.5.5, to be relevant in the present context.

Moreover, the respondent pointed to the teaching of document (14a) that the absorption of active agents onto an absorbent material resulted in a delayed release (see page 15, lines 16 to 22). However, delayed release cannot be equated with slow release, since short delays are not excluded. Indeed, the skilled person would be aware of the fact that the release properties would depend on the exact nature of the active ingredient, and the absorbent material (cf. e.g. document (14a), page 5, line 30 to page 6, line 10; page 43, lines 1 to 5). In the present case, the starting point for the assessment of inventive step is a combination of nicotine and MCC, which is known to be suitable for providing fast release (see above point 6.2.1). Consequently, it cannot be accepted that the skilled person would be dissuaded from considering the teaching of document (14a) when seeking a solution to the problem posed.

6.2.3 In view of the above considerations, the second auxiliary request is rejected for lack of inventive step of the subject-matter of claim 1.



7. *Third auxiliary request, claim 1 - Article 123(2) EPC*

Claim 1 defines a particulate material "releasing at least 90% w/w of the nicotine or the pharmaceutically acceptable salt, complex or solvate thereof within at the most about 10 min", wherein the concentration of nicotine, calculated as the nicotine base, is "at the most about 8% w/w".

The respondent pointed to claims 1 and 4 as originally filed as providing the basis for said combination of features. However, the release time of "within at the most about 10 min" has been selected from the ten options listed in originally filed claim 1, and the concentration of "at the most about 8% w/w" from eight options listed in originally filed claim 4. Therefore, these claims cannot provide a direct and unambiguous basis for the specific combination of features now claimed.

In this context, the respondent argued that the skilled person would derive from the dependence of claim 4 on claim 1 that all combinations of ranges were envisaged. However, the respondent did not identify any passage of the application as originally filed that would support the conclusion that the load ratios were to be seen as being independent of the remaining properties of the particulate material, in general, or of the *in vitro* release profile, in particular.

Accordingly, it must be concluded that no direct and unambiguous basis can be found in the application as originally filed for the selection and combination of features now claimed in claim 1. Hence, the subject-matter of this claim does not meet the requirements of

Article 123(2) EPC. Therefore, the third auxiliary request is not allowable.

**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:



M. Schalow

A. Lindner

Decision electronically authenticated