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Datasheet for the decision of 16 September 2016

Case Number: T 0388/15 - 3.3.06

Application Number: 03705838.5

Publication Number: 1482815

IPC: A24C5/00, A24D1/02

Language of the proceedings: EN

Title of invention:
SMOKING ARTICLES WITH REDUCED IGNITION PROCLIVITY CHARACTERISTICS

Patent Proprietor:
Schweitzer-Mauduit International, Inc.

Opponents:
01 Delfortgroup AG (Opposition withdrawn)
02 Societe Papeterie Leman SAS
03 Miquel y Costas & Miquel, S.A. (Opposition withdrawn)
04 Julius Glatz GmbH (Intervener)

Headword:
Paper wrapper/SCHWEITZER-MAUDUIT

Relevant legal provisions:
EPC Art. 105, 123(2), 123(3), 52(1), 54(3), 56, 83
RPBA Art. 12, 13

Keyword:
Intervention of the assumed infringer during appeal proceedings - admissible (yes)
Late-filed document - admitted (yes)
Novelty - no: Main Request - yes: First Auxiliary Request
First Auxiliary Request filed during the appeal proceedings - admissible (yes)
Amendments allowable: First Auxiliary Request (yes)
Inventive step - First Auxiliary Request (yes)

Decisions cited:
T 1764/06, T 0593/09, T 0482/09, T 1920/09

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

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Case Number: T 0388/15 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 16 September 2016

Respondent: (Patent Proprietor)	Schweitzer-Mauduit International, Inc. 100 North Point Center East Suite 600 Alpharetta, GA 30202-8246 (US)
Representative:	Grosch, Marcus Quinn Emanuel Urquhart & Sullivan, LLP Mollstrasse 42 68165 Mannheim (DE)
Appellant: (Opponent 2)	Societe Papeterie Leman SAS Division Papier B.P. 43 74202 THONON CEDEX (FR)
Representative:	Regimbeau 20, rue de Chazelles 75847 Paris Cedex 17 (FR)
Intervener: (Opponent 4)	Julius Glatz GmbH Staatsstrasse 37-41 67468 Neidenfels (DE)
Representative:	Schön, Christoph Dr. Schön, Neymeyr & Partner mbB Bavariaring 26 80336 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 23 January 2015 concerning maintenance of the European Patent No. 1482815 in amended form.**

Composition of the Board:

Chairman	B. Czech
Members:	G. Santavicca
	C. Heath

Summary of Facts and Submissions

I. The appeal by Opponent 02 (Appellant) lies from the decision of the Opposition Division concerning maintenance of European patent n° 1 482 815 in amended form.

The Patent Proprietor (Respondent) also filed an appeal, but withdrew it later with letter dated 2 September 2016.

II. The patent in suit had been opposed on the grounds of lack of novelty and inventive step (Article 100(a) EPC) as well as on the ground of insufficiency of the disclosure (Article 100(b) EPC), by Opponents 1 to 3.

In the course of the opposition proceedings the parties relied on the following items of evidence (*inter alia*):

E1: US 5,878,753 A;
E2: US 5,878,754 A;
E5: US 4,077,414;
E6: US 4,140,760 A;
E7: US 4,386,108 A;
E8: US 4,889,145 A;
E9: Kimberley-Clark Corporation, Product list (*wood cigarette papers <40 Coresta*); 13 November 1992;
E10: Ecusta, Product list (*cigarette paper - porous*); 15 April 1987;
E13: WO 02/37991 A1;
E14: US 5,820,998 A;
E15: US 5,316,575 A;
E16: US 4,615,345 A;
E17: US 4,489,738 A;
E20: EP 0 231 664 A;
E32: Alfred L. Wolff, Sales Specification, *Gum Arabic Quick-Gum type 8074*, Version No.1, 11 May 2003;

E37: EP 1 417 899 A1;
E38: EP 0 671 505 A2;
E42: US 5,474,095 A;
E48: Tests de Viscosité de matériaux filmogènes et Fiches Techniques respectives des matériaux testés, filed by Opponent 2 with its notice of opposition on 7 December 2009;
E56: Ignition Proclivity Test Trials filed by the Patent Proprietor with letter of 27 September 2010;
E57: A.B.Norman et al "*Measurement of Gas Diffusion Capacity of Cigarette Papers*"; Contributions to Tobacco Research, vol 21, no 8, 2005;
E59: Dennis J. McHugh, FAO Fisheries and Aquaculture Department Technical Paper - T 288, *Production and utilization of products from commercial seaweeds, Chapter 2 - production properties and uses of alginates*, 1987;
E60: ISP, International Specialty Products, "*Alginates for Industrial Applications*", 2005;
E61: Measurement of the Viscosity of Ethylcellulose (EC) according to Example 1 of US 5,878,753; filed by Opponent 1 with letter of 26 January 2011;
E62: Sigma-Aldrich, Product Specification, Ethyl Cellulose 200646, 21.06.2010;
E63: Brookfield Dial Viscosimeter, Operating Instructions, Manual M/85-150-P700;
E70: Technical Data of Ethyl Cellulose, including in particular Hercules "Product Data - Number 4176-4" *Aqualon Ethyl Cellulose*; 2008;
E79: Viscosity measurements on starch and alginate solutions under various shear rates and using different spindles;
E80: Declaration by Dr. Robin Rogers of 23 May 2012;

E81: Reduced ignition proclivity testing on certain cigarette papers printed with starch coatings; filed by the Patent Proprietor with letter of 24 May 2012;

E83: Viscosity Measurements of various film-forming materials filed by the Patent Proprietor with letter of 12 September 2014;

E85: "Conversion of Zahn Cup seconds to Centipoises", filed by the Patent Proprietor with letter of 12 September 2014.

III. With letters of 26 October 2011 and 15 September 2014, Opponents 1 and 3 withdrew their respective oppositions.

IV. Claim 1 held allowable by the Opposition Division (Main Request filed with letter dated 12 September 2014 reads as follows:

"*1. Paper wrapper for a smoking article that provides the smoking article with reduced ignition proclivity characteristics comprising:*
a paper web designed to surround a smokable filler, the paper web including discrete areas (18) treated with a film-forming composition, the treated areas (18) being separated by untreated areas (28), the treated areas (18) having a permeability of less than 40 Coresta for sufficiently reducing ignition proclivity of a smoking article (10) incorporating the wrapper (14), the film-forming composition applied to the paper wrapper (14) comprising a film-forming material contained in a solution in an amount sufficient for the solution to have a solids content of at least 6% by weight, the film-forming material having a viscosity of less than 500 cP when present in a 3% by weight solution at 25°C, wherein the film-forming material comprises an alginate

or comprises a material selected from the group consisting of guar gum, pectin, polyvinyl alcohol, a cellulose derivative, starch, a starch derivative, and mixtures thereof."

V. In the decision under appeal, the Opposition Division came to the following conclusions:
- The amended claims complied with Articles 84 and 123(2)(3) EPC and with Rule 80 EPC.
- The claimed invention was sufficiently disclosed.
- The claimed subject-matter was novel over documents E1, E2, E13 and E37 cited in this respect.
- E1 was the closest prior art. E1 did not disclose that the "film-forming-material" used had a low viscosity of less than 500 cP at 25°C, in a 3% by weight solution. This permitted the film-forming composition to have a high solids content but a solution viscosity making it suitable for conventional application techniques.
- The technical problem to be solved was to provide a composition with higher solid content and which could still be applied to the paper wrapper through conventional coating techniques.
- No evidence on file showed that this advantage was not achieved across the whole viscosity range claimed.
- Neither E1 nor E2 addressed this problem. In E1 and E2 only the viscosity of the solution actually applied to the paper web was controlled. E15 taught a composition with a viscosity of less than 500 cP at 25°C, which was, however, an ink composition for ink jet printing. None of further documents E5, E14, E17 or E38 taught the critical viscosity of less than 500 cP in a 3 wt-% solution of the film-forming material at 25°C.
- The claimed subject-matter was thus not obvious.

VI. With letter dated 24 April 2015, the company Julius Glatz GmbH paid opposition and appeal fees and filed a notice of intervention pursuant to Article 105 EPC, on the ground that an infringement action had been launched against it for infringement of the German Part of the European Patent at issue (B9 publication).

The Intervener submitted that the patent in the form considered allowable by the Opposition Division should be revoked on the grounds of non-compliance with Article 123(2) EPC, insufficient disclosure, lack of novelty and lack of inventive step. In support of its objections, the Intervener cited *inter alia* the further items of evidence:

E97: Experimental Report by Lothar Gehm, dated 21 April 2015;
E98: Expert Opinion by Prof. Samuel Schnabel, dated 3 August 2012;
E99: Experimental Report by Florian Gallon, dated 14 April 2015; and,
E101: US 5,417,228 A.

VII. With its statement setting out the grounds of appeal dated 20 May 2015, the Patent Proprietor filed an amended set of claims as new Main Request and maintained, as its First to Sixth Auxiliary Requests, the sets of claims filed before the Opposition Division as Main Request (held allowable) and Auxiliary Requests 1 to 5 on 12 September 2014. It also submitted a new item of evidence:

E88: Cigarette Performance Measurements.

VIII. In its statement setting out the grounds of appeal (dated 22 May 2015), the Appellant (Opponent 02)

maintained objections regarding sufficiency, novelty and inventive step against the claims held allowable by the Opposition Division. With the statement, it also submitted further items of evidence, *inter alia*

E89: Rheonova, caractérisation rhéologique de solutions d'alginate, 12 May 2015;
E90: Bonnart et al, Fiche Toxicologique FT 107, (iso)-Propyl-Acetates, INRS, Edition 2004;
E91: Bonnart et al, Fiche Toxicologique FT 211, Propan-1-ol, INRS, Edition 2010;
E92: Tests carried out by Opponent 02 concerning the measuring of the BMI (comprising: the "Protocole des essais de l'annexe P23" and the tables of "Influence de la Tension sur le BMI");
E93: Hampl et al, *Novel Methods for Measuring the Diffusional Conductance of Porous Membranes*, from http://industrydocuments.library.ucsf.edu/tobacco/docs/nyfc0087;
E94: PDL (Papeteries Du Leman), Tests carried out by Opponent 02, "*mesures de viscosité d'un mélange à 91% de carboxyméthylcellulose (CMC) et 9% d'alginate de sodium ayant un extrait sec de 3,0%*"; and,
E95: Durocher et al, "*Using Paper Diffusion Measurements to assess the ignition strength of Cigarettes*", Slides and Article presented by the Patent Proprietor at Coresta Joint Study Group Meeting in Standford upon Avon (UK), September 2005.

IX. In its letter dated 7 October 2015, the Patent Proprietor rebutted all the objections raised by the adverse parties. It nevertheless submitted six new sets of amended claims as further Auxiliary Requests 7 to 12, as well as further items of evidence, *inter alia*

E103: US 4,739,775 A.

X. With letter dated 7 October 2015, the Intervener *inter alia* disputed the admissibility of the appeal by the Patent Proprietor and raised/maintained objections against all pending claim requests up to Auxiliary Request 6.

XI. In a further letter of 15 March 2016, the Intervener objected against newly filed Auxiliary Requests 7 to 12. It referred *inter alia* to the following, newly filed items of evidence:

E109: US 3,518,242 A;
E110: WO 96/03537 A1;
E111: Supplementary Test Report of the Firm Glatz.

XII. In another letter dated 4 April 2016, the Intervener *inter alia* raised novelty objections based on the further item of evidence
E114: EP 1 234 514 A2.

XIII. The parties were summoned to oral proceedings. In a communication annexed to the summons, the Board provisionally noted *inter alia* that the appeal by the Patent Proprietor did not appear to be admissible, and that the intervention under Article 105 EPC appeared to be *prima facie* admissible.

XIV. By letters dated 20 and 21 June 2016, the Patent Proprietor withdrew its previously pending Main (claim) Request and filed seven claim requests as its new Main Request and First to Sixth Auxiliary Request, the latter corresponding to the claims held allowable by the Opposition Division. It also filed further items of evidence concerning E114 and the construction of the

term "*solution*". It provided arguments in support of the admissibility of its claim requests, the allowability of the amendments made, sufficiency of the disclosure, novelty and inventive step.

XV. In two further letters dated 22 June 2016 and 15 July 2016, the Intervener called into question the admissibility of all pending claim requests except Auxiliary Request 6, but also maintained objections under Articles 123(2), 83, 54 and 56 EPC against all claim requests. Under cover of said letters, it also submitted further items of evidence, *inter alia*

E134: Letter from Ingredion UK Ltd dated 27 April 2016.

XVI. With letter dated 22 July 2016, the Patent Proprietor rebutted the objections of the Intervener, and provided arguments in support of the admissibility of the new claim requests and the allowability of the amendments made to the claims. It also filed a further item of evidence:

E140: Letter from Tate & Lyle of 25 May 2016.

XVII. With letter dated 12 August 2016, Opponent 02 objected to the admissibility of all of the pending claim requests and maintained novelty objections based on E114. It also maintained that the term "*solution*" did not mean, nor encompass, a "suspension" or a "dispersion".

XVIII. In its communication dated 18 August 2016, issued in preparation for the oral proceedings, the Board summarised the case history and gave its provisional opinion on the salient issues of the case.

XIX. By letter dated 2 September 2016, the Patent Proprietor withdrew its appeal (thus assuming the status of Respondent). It disputed the narrow construction of the term "*solution*" adopted by the Board in its provisional opinion. In this connection, it *inter alia* referred to two new items of evidence (E142 and E143).
It dropped its pending claims requests except for the Sixth Auxiliary Request (claims held allowable by the Opposition Division), which it turned into its new Main Request, and submitted amended sets of claims as fresh First to Fourth Auxiliary claim Requests.

Claim 1 of this new First Auxiliary Request differs from Claim 1 of the Main Request (wording under IV, supra) only in that the "*untreated areas (28)*" are further qualified as "***having a permeability of greater than 60 Coresta***" and by the deletion of "*polyvinyl alcohol*" from the list of film-forming materials.

Independent Claims 9, 13 and 25 of the First Auxiliary Request read as follows

"*9. Smoking article having reduced ignition proclivity characteristics comprising:*
a column (12) comprising a smokable tobacco, and
a paper wrapper (14) according to one of the preceding claims."

"*13. Process for producing a paper wrapper (14) having reduced ignition proclivity characteristics when incorporated into a smoking article (10) comprising the following steps:*
providing a paper wrapper (14) comprised of a paper web, and
applying a film-forming composition to said paper wrapper (14) at particular locations, said film-forming

composition forming treated discrete areas (18) on said wrapper (14), the treated areas (18) being separated by untreated areas (28) having a permeability of greater than 60 Coresta, the treated discrete areas (18) having a permeability of less than 40 Coresta for sufficiently reducing ignition proclivity, the film forming composition comprising a film-forming material contained in a solution in an amount sufficient for the solution to have a solids content of at least 6% by weight, the film-forming material having a viscosity of less than 500 cP when present in a 3% by weight solution at 25°C, wherein the film-forming material comprises an alginate or comprises a material selected from the group consisting of guar gum, pectin, a cellulose derivative, starch, a starch derivative, and mixtures thereof."

"*25. Process for producing a paper wrapper (14) having reduced ignition proclivity characteristics when incorporated into a smoking article (10) comprising the following steps:*
providing a paper wrapper (14) comprised of a paper web, the paper web containing a filler; and
printing a film-forming composition to said paper wrapper (14) at particular locations to form treated discrete areas (18) on the wrapper (14), the treated discrete areas (18) being separated by untreated areas (28) having a permeability of greater than 60 Coresta, the treated discrete areas (18) having a permeability of less than 40 Coresta for sufficiently reducing the ignition proclivity characteristics of a smoking article (10) without causing the smoking article (10) to self extinguish in a free burn state, the film-forming composition comprising an aqueous solution containing an alginate, the solution containing the alginate in an amount so as to have a solids content of

at least 8% by weight, the alginate having a viscosity of less than 250 cP when present in a 3% by weight solution at 25°C, the treated areas (18) forming circumferential bands (24) along the length of the paper wrapper (14) when incorporated into a smoking article (10), the treated areas (18) having a permeability of less than 30 Coresta and having a BMI of less than 5 cm^{-1}, the film-forming composition being applied to the paper wrapper (14) in the treated areas (18) in an amount of from 2% to 20% by weight based upon the weight of the wrapper (14)."

Dependent Claims 2-8, 10-12 and 14-24 are directed, respectively, to more specific embodiments of the paper wrapper of Claim 1, of the smoking article of Claim 9 and of the process for producing a paper wrapper according to Claim 13.

XX. In its letter of 12 September 2016, the Intervener questioned the admissibility of the newly pending First to Fourth Auxiliary Requests, and contested the broad construction of the term "*solution*" adopted by the Patent Proprietor. With a further letter dated 14 September 2016, it submitted a copy of a reply of the Patent Proprietor filed in the parallel infringement proceedings also concerning the construction of the term "*solution*".

XXI. Oral proceedings were held on 16 September 2016. At the very beginning of the oral proceedings the Board indicated that, concerning the claim construction, in the communication issued in preparation for the oral proceedings, it had indicated its provisional opinion in this respect. Further submissions had been made in this respect by the parties in writing. However, none of the arguments provided by the Proprietor convinced

the Board that a broad construction of the term "*solution*" (including e.g. "colloidal solutions", as was submitted by the Proprietor) would be appropriate. However, there appeared to be no need to actually take a decision regarding this issue at this stage of the oral proceedings, as it was not apparent that this issue would have a bearing on the decisions to be taken regarding the pending novelty and inventive step objections raised, which appeared to be applicable also if the narrow construction was adopted.
The debate then focused *inter alia* on novelty over E114 (Claim 1 of the main request), admissibility of the First Auxiliary Request, allowability of this request (amendments, novelty, inventive step and sufficiency).

XXII. Final requests

The Appellant (Opponent 2) and the Intervener requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent (Patent Proprietor) requested that the appeal be dismissed and the intervention be rejected (Main Request) or, in the alternative, that the patent be maintained on the basis of the claims according to one of the First to Fourth Auxiliary Requests filed with letter dated 2 September 2016.

XXIII. The arguments of the Appellant and the Intervener ("opposing parties" hereinafter) of relevance for the present decision can be summarised as follows:

Admissibility of late filed items of evidence

E114, filed by the Intervener, was of very high relevance since *prima facie* novelty destroying, and

thus prejudiced the maintenance of the patent.
E111 was filed in reaction to the letter of the Patent Proprietor dated 7 October 2015 in order to show that the claimed subject-matter did not lead to any improvement whatsoever.
E134 was filed in reaction to the Patent Proprietor's letter of 20 June 2016, in order to prove that the "Flokote 64® starch" material used according to E114, and tested in E79, did not undergo any change in composition and properties between 2000 and 2015.
These new items of evidence should thus be admitted into the proceedings.

Novelty - claim 1

E114, in particular its Examples 1, 4, 5 and 10, explicitly disclosed all of the features of Claim 1 at issue apart from the viscosity of the film-forming material used, Flokote 64® starch. E79 (Page 1, Table 1, Starch 3) showed, however, that this film-forming material also fulfilled the viscosity requirement of Claim 1 at issue. Furthermore, E134 confirmed that this particular starch film-forming material had a viscosity as claimed also before the filing date of E114. Hence, the doubts cast by the patent Proprietor were not convincing. Instead, since in the present case the invention was claimed using an unusual parameter, the onus to prove that the starch material of E114 was different lay on the Patent Proprietor (in this respect T 1764/06 of 24 June 2010 and T 1920/09 of 14 June 2012 were invoked). The claimed subject-matter thus lacked novelty over the disclosure of E114.

First Auxiliary Request - Admissibility

This request was filed too late. Although it could have

been filed already with one of the previous submissions of the Patent Proprietor, it was filed five months after the filing of E114 and only two weeks before oral proceedings, despite the indication of the Board that its communication was not to be taken as an invitation to file new requests. Moreover, the changes made in the claims were not straightforward.

First Auxiliary Request - Amendments

Claim 1 according to the First Auxiliary Request was objectionable under Article 123(2) EPC:
The feature of claim 1 at issue reading "*treated areas of less than 40 Coresta for sufficiently reducing ignition proclivity*" was more specific than the feature "*treated areas having a permeability within a range sufficient to reduce ignition proclivity*" appearing in the claims of the application as filed, in at least two aspects:
- The first part of the feature, "*the treated areas having a permeability of less than 40 Coresta*", had been isolated from its context in the application as filed (Claim 7, concerning a smoking article; Claim 31, concerning a process for making a paper wrapper; and description page 4, lines 23-27, and page 13, lines 2-11), disclosing it in combination with a a base paper of 20 to 90 Coresta, or in combination with a special smoking article. Thus it had been generalised.
- The second part reading "*for sufficiently reducing ignition proclivity*" found no *verbatim* basis in the application as filed and differed in meaning from the wording "*sufficient to reduce ignition proclivity*" appearing in Claim 1 of the application as filed, the latter merely requiring some (unspecific) reduction of the ignition proclivity ("IP" hereinafter). In contrast thereto, the specific terms "*for sufficiently reducing*

ignition proclivity" required the paper wrapper to have treated areas with a permeability of less than 40 Coresta and to clearly (100%) pass an IP test. However, the application as filed did not disclose that a paper wrapper with treated areas of less than 40 Coresta always passed an IP test.
Moreover, the feature of Claim 1 reading "*untreated areas having a permeability of greater than 60 Coresta*" had also been isolated from its particular contexts in which it had been originally disclosed (Claim 15 and page 11, lines 2-10, of the application as filed), without having been ever presented as a preferred embodiment of the invention originally disclosed.

Claim 14 at issue was also objectionable because it now defined the film-forming material as "*comprising*" the listed materials, instead of being selected among the listed materials, as disclosed originally e.g. in Claim 32 of the application as filed.

Thus, the claims of the Main Request did not meet the requirements of Article 123(2) EPC, and were thus not allowable.

First Auxiliary Request - Novelty

Example 10-G of E114 disclosed all of the features of Claim 1 according to the First Auxiliary Request. In particular, in this example, a paper H, having a permeability of 71 Coresta, was coated with a composition comprising 21 wt.-% of Flokote 64®starch, which had a viscosity value as defined in Claim 1 at issue. The permeability of the treated areas of the illustrated paper wrapper was not mentioned, but was implicitly, below 40 Coresta. This was apparent from paragraph [0111] showing a permeability reduction of

70% (from 18 to 5 Coresta) for the banded area of Paper A in Article 10-F. Such a degree of reduction was also attained, inevitably, by the same banded area applied to the base paper of 71 Coresta, thus obtaining a value of 21 Coresta, i.e < 40 Coresta. The correctness of this implicit disclosure was also apparent from other parts of E114: Tables 8 and 9 showed the strong permeability reduction (to less than 40 Coresta) obtainable by using the same amount of film-forming polymer, 20 wt%, on paper A. Moreover, in paragraph [0034] of E114 it was stated that the permeability of the treated areas was always very low. Finally, Claim 65 of E114 required an ignition propensity of between 50 and 100%. Therefore, the subject-matter of Claim 1 at issue was not novel.

First Auxiliary Request - Inventive step

The closest prior art was disclosed in E1, in particular in Example 1 thereof. E1 disclosed the use of a low viscosity film-forming material, as apparent from the Zahn viscosity indicated. The value of the Zahn cup viscosity of the coating solution (Column 7, lines 42-45) implied a viscosity of the film-forming material of less than 100 cP, as apparent from the calculations (statement setting out the grounds of appeal) and measurements (e.g. E61 and E98) submitted. A further indication that E1 used low-viscosity film-forming materials was apparent from the mention (Column 4, from line 40) of almost all of the film-forming materials also considered suitable in the opposed patent. The only feature of Claim 1 not disclosed in E1 was the base paper permeability of > 60 Coresta. However, it had not been shown that the use of a more permeable base paper led to superior characteristics over the paper wrapper of E1.

The problem formulated by the Patent Proprietor concerned the process of preparation of the paper wrapper, wherein the viscosity was important, rather than the paper wrapper, and found no basis in the application as filed. The problem solved was thus merely to provide an alternative paper wrapper.
Although E1 did not explicitly mention the use of a base paper with permeability greater than 60 Coresta, it hinted (Column 5, lines 23-27) at using any "commercially available" paper wrapper webs.
At the priority time of E1, commercially available paper wrapper webs having a permeability up to and greater than 60 Coresta were known, as apparent from E8, E9 and E10, as well as from E14, E16, E20 and E42.
As the viscosity of the ethyl cellulose used in the solution of E1 was implicitly well below 500 cP, and as E1 (Column 7, line 25) mentioned the use of high speed printing, a broad range of changes in the viscosity of the film-forming solution of E1 was still possible, in order to adapt the process of E1 to the viscosity of the film-forming solution to be applied to higher porosity paper wrappers by conventional techniques such as high speed printing. The skilled person following the incitation to apply the coating of E1 to any kind of conventional paper wrappers thus needed no further motivation for applying the teaching of E1 to known paper wrappers of porosity higher than 60 Coresta, in order to produce a paper wrapper alternative to that of E1. Only the final value of the porosity to be attained in the treated areas was to be fixed. The claimed paper wrapper was thus obvious over E1.

Insufficiency of the disclosure

The invention was insufficiently disclosed to the extent that the claimed viscosity parameter was unusual

and that its determination was not sufficiently disclosed in the patent in suit. The patent in suit did not contain sufficiently detailed indications concerning measurement conditions such as suitable solvent(s), time of measure, viscosimeter type, spindle/speed combination, and allowable variations thereof. Consistent determination of the viscosity value was thus not possible. Thus, the claimed, unusual viscosity feature did not permit to reproduce the invention, let alone to assess whether the skilled person was working with a film-forming material according to Claim 1 at issue.
Even assuming that the person skilled in the art could - without difficulty - rely on manufacturer's data (sheets) in finding suitable film-forming materials fulfilling the viscosity requirement of Claim 1, the insufficiency would remain, as the film-forming material defined in this claim might also comprise a mixture of the listed film-forming materials. It was not clear in that case how the skilled person could derive the required information or determine whether or not such a mixed film-forming material fulfilled the viscosity requirement of Claim 1 at issue, in particular across the whole breadth of Claim 1 at issue. According to evidence such as E94, submitted by the opposing parties, it had been shown that, depending on the conditions used, the viscosity of a mixture alginates/CMC could be greater or lower than 500 cP. Also, it was not apparent either how many measurements had to be carried out, and which standard error could be tolerated, in order to determine the prescribed viscosity value for a mixture comprising the film-forming materials defined in Claim 1 at issue. The description of the patent in suit was very succinct, the Brookfield apparatus mentioned therein was no longer available, and important items of information

such as spindle number, temperature, and other test conditions such as concentration and pH were missing. These missing conditions greatly influenced the result, which might deviate from 20 to 50% in value.
Since the viscosity in solution of a mixture of film-forming materials could not be gathered from manufacturers' data sheets, and since the viscosity of any such mixture was an unusual parameter, sufficiency of the disclosure across the whole scope of Claim 1 at issue should not be acknowledged.
Also the method for measuring the claimed BMI value depended on conditions that were not sufficiently disclosed in the patent in suit, such as the voltage and the time of measurement.
Finally, the statement in the Board's communication (page 27, Point 25.3.11) was an admission that the invention was not sufficiently disclosed across the whole scope of Claim 1 at issue, rather than a lack of clarity at the edge. This last point also deserved a re-opening of the debate as requested at the end of the oral proceedings.

XXIV. The (counter) arguments of the Respondent (Patent Proprietor) of relevance for the present decision can be summarised as follows:

Admissibility of late filed items of evidence

As the Patent Proprietor wished the patentability of the claimed subject-matter to be fully explored by the Board, the late filing of E114 was not objected to.
E111 failed to specify the amount of burn additives which were always used in order to prevent flaking of the ashes produced. Also, E111 showed contradictory results. Hence, it should not be admitted.
E134, which implicitly stated that it was impossible to

certify the exact characteristics of the product manufactured 16 years ago, was not admissible either.

Main Request - Amendments

The amendments made to the claims in the course of the proceedings all found basis in the application as filed.

Main Request - Novelty

E114 did not disclose all of the features defined in Claim 1 at issue. In particular the viscosity of the film-forming materials used according to the examples was not disclosed. "Flokote 64®starch" was used in some of the examples of E114 (filed in 2001) invoked by the adverse parties. The product tested according to E79, i.e. about 15 years later, was commercialised under the same trade name but by a different company. Absent any corroborating evidence, it was thus not certain that the composition, hence the viscosity, of Flokote 64®starch had remained the same over the years. Without any corroborating evidence, a trade-mark disclosure *per se* was not clear regarding the exact product composition. E134 was issued by a business manager of Ingredion, now commercialising Flokote 64®starch, not by one of National Starch Berkeley California, which no longer existed. It was not apparent why the manager who signed it had any knowledge of the properties of the Flokote 64®starch material available in 2001. Also, there was no evidence on file corroborating that the film-forming material had not changed during the time. Hence, the nature and properties of the material referred to in E114 had been not proven. The onus of proof lay on the opponents and had not been discharged. The claimed subject-matter was thus novel over E114.

First Auxiliary Request - Admissibility

It was very clear what had led to the filing of the First Auxiliary Request at issue. The feature concerning the permeability of the untreated areas (Coresta feature) was already present in the claim requests filed with letter dated 21 June 2016, in reaction to the filing of E114. The First Auxiliary Request at issue was filed in response to the Board's communication, with the purpose of streamlining the proceedings by dropping claims comprising a disclaimer which had been objected to. The First Auxiliary Request should thus be admitted into the proceedings.

First Auxiliary Request - Amendments

The subject-matter of the amended claims was directly and unambiguously derivable from the application as filed. The purpose of the insertion of the feature "*for sufficiently reducing ignition proclivity*" was to define the reduction of the IP without unduly defining numerically the degree of this reduction, as in the application as filed there was no imperative indication of a degree of IP to be always attained.
The feature that the base paper permeability is "*greater than 60 Coresta*" was disclosed *verbatim* in the application as filed, and generally in connection with all embodiments of the invention.
The deletion of "*PVOH*" from the list of the film-forming materials did not pose any problem under Article 123(2) EPC.
The claims of the First Auxiliary Request thus complied with Article 123(2) EPC, and were formally allowable.

First Auxiliary Request - Novelty

E114 did not disclose the permeability of the treated areas of the paper wrapper illustrated in its Example 10-G. Nor was a permeability as claimed the inevitable result of the process described in this example. In fact, the IP pass rate of Example 10-G was so poor (i.e. 50%) that it had to be assumed that the treated areas had a permeability much higher than 40 Coresta. Paragraph [0111] of E114 indeed mentioned that for perforated Paper A, having a permeability of 71 Coresta, the permeability of the treated areas was 57 Coresta. The reduction in permeability (70 %) that the adverse parties derived by calculation from paragraph [0111] (from 18 to 5 Coresta for Article 10-F comprising Paper A) was based on the mere assumption that the same amount of coating would proportionally reduce, in the same way, the permeability of Paper H in example 10-G. According to the general disclosure of paragraph [0034] of E114 the permeability of the treated areas might indeed be less than 10 Coresta. However, it was not said in E114 that such a low permeability was achieved according to all the examples. Therefore, there was no direct and unambiguous disclosure in E114 of all the features of Claim 1 at issue in combination, let alone in Example 10-G.

First Auxiliary Request - Inventive step

The closest prior art was disclosed in E1. However, E1 neither disclosed the viscosity of the ethyl cellulose used as film-forming material, as defined in Claim 1 at issue, nor that the base paper of the wrapper had a permeability of greater than 60 Coresta.

As regards the viscosity, the passage of E1 (Column 7, lines 42-45) invoked by the adverse parties and referring to a "solution" concerned the coating composition used. Moreover, the temperature at which the mentioned viscosity measurement was carried out was not indicated. In this respect, the calculations and measurements made by the opponents on low-viscosity ethyl cellulose were contested, as it was not possible to directly and unambiguously gather that the low-viscosity ethyl cellulose used in these experiments was the one of E1. Thus, the invoked passage in E1 did not disclose the use of a low viscosity film forming material as claimed in compositions to be coated on paper wrappers in order to reduce the IP thereof. Since also the passages in Column 4, starting from line 40, in E1, did not teach any low viscosity film-forming material, no indication regarding the viscosity of the film-forming material used could be gathered from E1.

The technical problem over E1 was to provide a paper wrapper, on the treated areas of which a film of better quality had been coated, which was more continuous and had less imperfections, and which reduced the permeability of the base paper, in order to sufficiently reduce the IP, without unnecessarily reducing the permeability however.

This problem had been solved by the use of a low-viscosity film-forming material as claimed, on a base paper of high permeability. This was apparent from the experimental data on file.

In any case, taking into account the following aspects, the claimed invention was not obvious even if the technical problem in the light of E1/Example 1 were merely be seen in providing a further paper wrapper:

- At the time of E1, high viscosity polymers were definitely preferred, as apparent from E14 and E38.
- In fact, E1 mentioned the use of alginates as film-forming materials without differentiating between low and high viscosity types, so that the alginates mentioned in E1 should be the high viscosity alginate film-forming polymers used according to E14 and E38.
- E1 required a control of the viscosity of the coating composition, not a control of the viscosity of the film-forming polymer, as defined in Claim 1 at issue.
- However, the use of low viscosity film-forming materials was not comparable to the control of the viscosity of the film-forming solution in other ways.
- The control of the viscosity of the coating solution required by E1 (Column 7, lines 29-30, and 43-45) could be attained by heating the solution, or by changing its pH, or any other measure which lowered the viscosity.
- The base paper used in all of the examples of E1 (Column 7, line 43) had a porosity of 32,6 Coresta, the viscosity of the coating solution mentioned in E1 was related to this porosity, the aim being to bring down the permeability and reduce the IP as illustrated.
- The specific teaching of E1 that the band coating films worked on low porosity paper wrappers was not directly transferable to coatings on high porosity papers, let alone with low-viscosity film-forming materials.
- That the skilled person would not have wanted to apply the coating composition of Example 1 of E1, used on a paper wrapper with a permeability of 32 Coresta, to a base paper with a porosity of higher than 60 Coresta, to bring down its permeability, was apparent from E101 (Column 5, lines 5-42), which dissuaded the skilled person from using cigarette papers with porosity higher than 60 Coresta.
- E20 disclosed a very special technique using heat

removable materials in order to reduce IP, thus taught away from using low viscosity film-forming materials.
- The further items of evidence invoked by Appellant and Intervener during the oral proceedings to show why the skilled person would have wanted to apply the coating composition of E1 also to high porosity papers, all taught away from the claimed invention.
Thus, the skilled person found no motivation to foresee changes leading him to paper wrappers as claimed.
E1, taken alone or in combination with the documents invoked, did not render obvious the claimed subject-matter.

Sufficiency of the disclosure

The viscosity feature as claimed was not unusual, as it was so indicated in the product data sheets of film-forming polymer materials, e.g. E48. The skilled person knew how to determine the viscosity of the film-forming material as claimed, as apparent e.g. from E79 and 83 submitted by the Patent Proprietor. The possible measurement conditions were limited, in particular as regards the combinations of spindle number and speed, as apparent from operating manual E63, or from E79. Actually, E83 showed that the measurement was independent from spindle/speed combination. The skilled person was aware of possible imitations regarding suitable solvents belonged to the knowledge of the skilled person. Relevant information could also be gathered from the manufacturer's data sheets, as shown in e.g. in E48. Also the measurement time was common general knowledge. The variations in the measurement results were insignificant. In order to disprove this, the opponents had deliberately picked unreasonable conditions, giving measured viscosity values near the upper limit "*less than 500 cP*" range, for measuring the

viscosity. Thus, the burden of proof lay on the opponents and had not been discharged. Hence, the invention was sufficiently disclosed.
The skilled person had no problem at all to obtain and/or identify film-forming materials meeting the viscosity criterion defined in Claim 1 at issue. Indeed, he might get this information from the manufacturer of the film-forming material.
Also the possible presence of a mixture of film-forming materials was not a problem for the skilled person. The onus to prove the contrary lay on the opponents, and had not been discharged in this respect, either.

As regards the alleged insufficient disclosure relating to the BMI feature in respect of voltage and time, E92, invoked by opponent 02 showed that the skilled person could determine the claimed parameter even when the measurement was carried out under different measurement voltages. Also, since the structure of the paper changed over a long period of time, measuring after a long time was unnecessary and illogical, hence would be ruled out by the skilled person.

Reasons for the Decision

Admissibility of the intervention

1. The Board is satisfied that the intervention as filed meets all the relevant formal requirements of the EPC (see VI, *supra*). This was not disputed by the Patent Proprietor.

The Board concludes that the intervention admissible.

Admissibility of items of evidence submitted in the appeal proceedings

2. Evidence considered in the present decision

2.1 The Patent Proprietor expressly requested the Board to consider document E114 when assessing patentability issues, despite it being filed only with the third written submission of the Intervener.

2.2 Experimental report E111 was submitted by the Intervener, well in advance of the oral proceedings, in reaction to the Patent Proprietor's arguments (letter dated 7 October 2015) regarding the experimental report E99 filed earlier on by the Intervener.

For the Board, the late filing of E111 is thus justifiable.

2.3 E134 was also submitted by the Intervenor, in reaction to the arguments presented in the Patent Proprietor's letter of 21 June 2016. E134 was filed in order to prove that the composition of a film-forming material disclosed in E114 (and also used in the experiments according to E79) had not changed over time.

For the Board, the late filing of E134 also constitutes a justifiable reaction to a development during the appeal proceedings.

2.4 Taking into account the above mentioned circumstances, the Board decided to admit documents E111, E114 and E134 into the proceedings (Article 114(2) EPC and Articles 12 and 13 RPBA).

3. Evidence not expressly addressed in this decision

The admissibility of the further items of evidence which were, at least arguably, filed too late in these appeal proceedings, need not be addressed in the present decision, since they turned out to have no potential bearing on the Board's findings set out below.

Claim construction

4. Claim construction

The parties did not agree on the meaning of some of the features comprised in the claims at issue.
In this respect, the Board holds the following:

4.1 Regarding the feature "*the film-forming material having a viscosity of less than about 500 cP when present in a 3% by weight* ***solution*** *at 25°C*"

4.1.1 In its communication issued in preparation for the oral proceedings, the Board had indicated its provisional opinion in respect of the meaning to be given to the term "*solution*" in the context of the viscosity feature in Claim 1, i.e. that this term designated dispersions at the molecular level (true solutions) and thus excluded suspensions. None of the arguments subsequently provided by the Proprietor convinced the Board that a broader construction of the term *"solution*", i.e. the inclusion of "colloidal solutions" would be appropriate in the present case.

4.1.2 However, there is no need for the Board to further expand on this issue since even adopting the narrowest reading of the term "*solution*" in the context of the

feature in question, as considered appropriate by the opposing parties, the novelty and inventive step objections against the First Auxiliary Request did not convince the Board (see Points 9 and 17, *infra*).

4.2 Regarding the feature "*treated areas of less than 40 Coresta for sufficiently reducing ignition proclivity*"

4.2.1 As pointed out by the Intervener, this feature introduced into the claims during substantive examination is worded differently from the "*treated areas having a permeability within a range sufficient to reduce ignition proclivity*" as present in the claims of the application as filed.

4.2.2 Whereas the latter feature merely requires that the permeability of the treated areas be within a range of values sufficient for reducing the ignition proclivity to some noticeable (significant) extent, the feature now comprised in the claims at issue literally requires the treated areas to have a permeability within the specified range of "*less than 40 Coresta*" and to be such as to reduce the IP of a smoking article comprising the wrapper to or below some (implicit) level considered sufficient.

4.2.3 In view of the objections raised against *inter alia* the 1st Auxiliary Request under Article 123(2) EPC and as regards inventive step, the term sufficiently in the context of the feature "*for sufficiently reducing ignition proclivity*" needs to be interpreted.

4.2.4 According to the patent in suit (paragraphs [0023], [0024], [0047] and [0049]), the treated areas of the wrapper with a permeability of less than 40 Coresta provide the desired results in terms of reduced IP and/

or self-extinction of the smoking articles.

For the Board, this means that the IP reduction achieved must be such that a smoking article comprising the wrapper according to the invention passes at least one of the tests indicated in paragraphs [0023] and [0024] of the patent in suit and/or has a Burn Mode Index ("BMI" hereinafter) of less than about 8 cm^{-1} (paragraphs [0048] and [0049]).

4.2.5 The Board observes that neither Claim 1 nor the description of the patent in suit expresses that according to the invention a self-extinction pass rate of 100% for smoking articles comprising the wrapper needs to be achieved in one particular test, for instance according to the NIST test mentioned in paragraph [0024] of the patent in suit. This appears to be corroborated by Claim 16 of the patent in suit according to which the wrappers of the invention are required to provide a "*sufficiently reduced*" IP, but "*without causing the smoking article to self extinguish in a free burn state*", i.e. that self-extinction properties should not be achieved at the expense of free burn.

4.2.6 Therefore, whether a wrapper is to be considered as providing "*sufficiently reduced IP*" may depend on the test to which the smoking article is subjected. As a case in point, if the "Cigarette Extinction Test" described in paragraph [0024] is applied, it is apparent from, for instance, E95 (page 2), which mentions the relevant norm ASTM E2187-04), that for the test to be "passed" the percentage of cigarettes that self-extinguish need not be 100% but may be only (at least) 75%. E57 (page 426, Introduction, second paragraph, second sentence) also mentions the criterion

of a self-extinction rate of at least 75% as measured by "ASTM E2187-02b".

4.2.7 Hence, the Board concludes that Claim 1 does not require a 100% self-extinction rate as argued by the Intervener, let alone under the conditions of one particular test method. This is also apparent from the alternative requirement according to which a Burn Mode Index ("BMI") value of less than about 8 cm^{-1} is indicative of a sufficiently reduced IP (paragraphs [0048] and [0049]).

Main request - Claim 1 - Novelty

5. Document E114 is an earlier European patent application but published after the priority date (unchallenged) of the patent in suit. Thus, its disclosure is prior art pursuant to Article 54(3) EPC. This is not in dispute.

5.1 It is not in dispute that E114, in particular each of its Examples 1, 4, 5 and 10, discloses paper wrappers with all the features of Claim 1. The Respondent argued only that E114 did not disclose that the film-forming material "Flokote 64® starch" used in these examples had a viscosity as defined in claim 1 at issue.

5.2 Indeed, the paper wrappers described in E114, Example 1 (paragraphs [0050] to [0052] and Table 3, e.g. "grab sample" data B-4), example 4 (paragraphs [0070], [0071] and Tables 9 and 10, data for cigarette types 4-D and 4-E), example 5 (paragraphs [0075], [0076] and Table 12, data for cigarette type 5D) and example 10 (paragraphs [0107], [0108] and Table 18, data for all cigarette types except 10-F and 10-G) were all made by coating the wrapper base paper with bands of an aqueous composition comprising *inter alia* more than 6% by

weight of the film-forming material Flokote 64® starch. The bands of reduced permeability so produced provided the cigarettes produced with an IP sufficiently reduced within the meaning of the patent in suit: All the cigarettes comprising these wrappers successfully (>75%) passed the NIST (10-sheet) filter paper IP test (also mentioned in the patent in suit), as apparent from the corresponding "IP pass (%)" values reported in the quoted tables (see footnotes).

5.3 The opposing parties referred *inter alia* to documents E79 and E134 to prove that the the film-forming material "Flokote 64® starch" had a viscosity as required by Claim 1 at issue.

5.3.1 More particularly, the opposing parties first relied on experimental results E79. This document was filed by the Patent Proprietor in support of its argument regarding sufficiency of the disclosure and describes *inter alia* the viscosity (in solution) of a "Flokote 64® starch" product.

5.3.2 The Respondent doubted whether the product commercialised as Flokote 64®starch film-forming material more recently, i.e. the one used according to E79, was identical to the product available under the same trade name at the priority date of E114. Hence, it called into question the probative value of E79 and E134 in the assessment of novelty over E114.

In this respect, it also relied on E140. E140 does not, however, concern the film-forming material Flokote 64®starch. Even if it were considered admissible, this document could thus not further corroborate the doubts cast by the Respondent.

5.4 For the Board, the following statements in E134 are particularly relevant in this connection:

(a) "To this end we have already provided to you samples of the product and the technical data sheet - in effect, the specification for the product" (First paragraph, second sentence).

(b) "As you will have seen from the technical data sheets, the Flokote 64® starch product does have these characteristics" (first sentence of third paragraph).

Note: "These characteristics" referred to are those mentioned *supra* in E134 (second paragraph, Points 1 and 2), namely that
- "Flokote 64® starch product forms an aqueous solution in tap water in a 3% by weight solution at 25°C", and, that
- "Flokote 64® starch solution has a low viscosity when present in a 3% by weight solution at 25°C, lower than 500 cP (concrete even lower than 50 cP), when measured with a standard viscosimeter, e.g. with a Brookfield LVF viscosimeter".

(c) Regarding the question whether "the same physical product characteristics as Flokote 64® starch product previously sold by national Starch Berkely, CA, and indeed as it was sold in the year 2000", the author of E134 (an employee of the company currently commercialising Flokote 64 ®starch) indicates that "As far as we are aware, based on the specification/technical data sheets, the Flokote 64® starch product today has same physical product characteristics as it did in 2000" (third and fourth paragraph).

5.5 Thus, E134 confirms that the viscosity values for the film-forming material Flokote 64 ®starch given in E79 has not changed from the date of priority of E114.

5.6 The Respondent merely cast some general doubts in this respect, but could not point to specific facts or parameters that could have seriously cast doubts on the probative force of documents E134 and E79.

5.7 The Board sees no reason for calling into question the correctness of the statements made in E134, nor to consider that the product commercialised as Flokote 64® starch at the time the experiments of E79 were carried out significantly differed in terms of an important physical property, such as its viscosity in solution, from the product commercialised under the same trade name by a different company (National Starch Berkeley, CA, as mentioned in E114, page 7, line 9) at the filing date of E114.

5.8 Moreover, the Board notes that according to the tests described in E79 (undisputed as such) the viscosity of the Flokote 64 starch tested was about 5cP or less, i.e. much lower, by two orders of magnitude, than the upper limit prescribed by Claim 1 at issue. Small variations of this value would therefore have no influence on the assessment of novelty.

5.9 Hence, the Board is convinced in view of E79 and E134 that the Flokote 64® starch used according to E114 also (implicitly) meets the criterion of Claim 1 at issue regarding the viscosity (in solution) of the film-forming material. The Board holds that the opposing parties have convincingly discharged the burden of proof that rested with them in this respect.

5.10 The Board concludes that at least the paper wrappers described in Example 1 (sample B-4), Example 4 (4-D, 4-E), Example 5 (e.g. 5A), and 10 (apart from 10-F and 10-G), display all the physical characteristics required according to Claim 1 of the Main Request.

5.11 In the Board's judgement, the subject-matter of Claim 1 according to the Main Request thus lacks novelty over E114 (Articles 52(1) and 54(3) EPC).

5.12 Consequently, the Patent Proprietor's Main Request is not allowable.

First Auxiliary Request - Admissibility

6. The set of claims according to the First Auxiliary Request was filed for the first time two weeks before the oral proceedings. Its admissibility was therefore called into question by the opposing parties. Its admittance into the proceedings is subject to the Board's discretion (Articles 12(4) and 13 RPBA).

6.1 The First Auxiliary Request at issue corresponds to the Fourth Auxiliary Request already filed with letter dated 21 June 2016, except for the deletion of the disclaimer "*excluding paper wrappers made from cellulosic fibres that are exclusively obtained from flax*" from independents Claims 1, 13 and 25 of said Fourth Auxiliary Request.

6.2 The deletion of the disclaimer, intended to establish novelty over E114 (filed late in the appeal proceedings with letter of 4 April 2016), was made in reaction to the objections by the Intervener and the negative provisional opinion given in the Board's communication.

6.3 The further amendments to the independent claims at issue, i.e. the deletion of the option "*polyvinyl alcohol*" from the list of the film-forming materials, and the insertion of the feature "*having a permeability of greater than 60 Coresta*", had already been proposed earlier in form of said previous Fourth Auxiliary Request, which the opposing parties had also considered to have been filed inadmissibly late.

6.3.1 However, the option "*polyvinyl alcohol*" was apparently deleted in reaction to the novelty objections raised in the statement of grounds of the Appellant and by the Intervener on the basis of documents E38 (and E109 or E110), not dealt with in the decision under appeal. Moreover, the deletion of "*polyinvyl alcohol*" had already been proposed earlier in the form of the claims of the Seventh to Twelfth Auxiliary requests filed with letter of 7 October 2015.

6.3.2 The insertion of the additional limiting feature "*greater than 60 Coresta*", also intended to render moot the novelty objection on the basis of E114, stems from dependent Claim 9 as granted. For the Board, this amendment was not surprising and contributed to the convergence of the debate.

6.4 Hence, the Board holds that the filing of the new First Auxiliary Request shortly before the oral proceedings is a justifiable reaction to the filing of further prior art documents (*inter alia* E114, E109, E110) at a late stage of the proceedings. The amendments made to the claims were foreshadowed in earlier claim requests and/or do not raise complex new issues, but rather reduce the number of controversial issues, i.e. contribute to the debate's convergence.

6.5 Therefore, the Board decided to admit the First Auxiliary Request into the proceedings (Articles 12(4) and 13(1)(3) RPBA) despite its late filing.

First Auxiliary Request – Amendments

7. Compliance with Article 123(2) EPC

7.1 The combination of the features defined in Claim 1 at issue finds a basis in the application as filed (published as WO 03/061410 A1), as follows:

7.1.1 Original Claims 15 (paper wrapper), 16 (alginate as film-forming material), 21 (other film-forming materials) and 23 ("*having a permeability of greater than 60 Coresta*"), whereby each of Claims 16, 21 and 23 refers back to Claim 1.

7.1.2 The features "*having a permeability of greater than 40 Coresta*" (treated areas) are disclosed *verbatim* in the application as filed, see dependent Claims 7, 11 and 23, concerning fall-back positions sought-for *ab initio*, and Page 4, lines 23-24, and page 10, lines 14-16. For the Board, both the original combination of Claims 7 and 11 with Claim 1 by reference (whereby Claim 1 defines the paper wrapper used in the smoking article) and the passages on Pages 4 and 10, directly and unambiguously teach that this combination was generally desirable and applicable to all embodiments.

7.1.3 The wording of the further limitation "*treated areas of less than 40 Coresta* ***for sufficiently reducing*** *ignition proclivity*" (emphasis added), is not disclosed *verbatim* in the application as filed. The opposing parties objected that this amendment to Claim 1 not only introduced a wording different from the one of the

claims of the application as filed (reading "*within a range* ***sufficient to reduce*** *ignition proclivity*", emphasis added), but also set a new, undisclosed minimum level of reduction in IP (see points 4.2, *supra*).

However, the Board holds that the following passages of the application as filed, dealing with the general disclosure of the invention (having corresponding passages in the patent in suit) constitute a basis for the claimed requirement that IP be "***sufficiently*** *reduced*", in particular in combination with the required permeability of less than 40 Coresta of the treated regions:

- Page 6, lines 20-22 (concerning the "Mock-Up Ignition Test" and "Cigarette Extinction test"), and
- Page 13, lines 5-11, in particular lines 9-11 (confirming that a permeability in the claimed range of less than 40 Coresta in the treated areas "*provides the desired self-extinguishing results*"),
and
- Page 13, lines 19-21 (concerning the requirement of a BMI of the treated areas of less than about 8 cm^{-1}") and lines 24-25 (stating that "*the composition applied to wrapper 14 in treated areas 18 provides the reduced permeability in treated areas*").

7.1.4 Taken together, these passages unambiguously disclose forming treated areas (bands) having a permeability of less than 40 Coresta to achieve the desirable, i.e. sufficient, reduction of the IP, such that a cigarette comprising a wrapper so treated passes one of the tests mentioned in the description and/or has a BMI of less than about 8 cm^{-1}.

7.1.5 Thus, for the Board, the differently worded requirement of Claim 1 at issue ("*for sufficiently reducing*") is implicitly, but unambiguously, derivable from the application as filed in combination with the other features of Claim 1.

7.2 Claim 9 according to the First Auxiliary Request is based on original Claims 1, 2, 7, 8 and 11, as well as on the passages of the original description mentioned *supra*) which unambiguously imply the feature "*treated areas of less than 40 Coresta for sufficiently reducing ignition proclivity*".

7.3 Claim 13 at issue is based on:
- a combination of Claims 25, 26, 31 and 32, and Claim 23, as originally filed, wherein each of Claims 26, 31 and 32 independently refers to Claim 25, whilst Claim 23 unambiguously concerns the paper wrapper of Claim 1 as originally filed, which is the result of the process of Claim 25;, as well as,
- on e.g. page 4, lines 23-25, page 6, lines 20-22, page 7, lines 6-12, and page 13, lines 5-11 and 19-21, providing general support for the combined features.
Although original Claim 32 reads "*the film-forming material **is** a material ..*", the amended wording ("*comprises*") in claim 13 at issue is directly derivable from the wording "*and mixtures thereof*", which implies "comprising one or more of them", and in any case from page 7, line 10, (see "*include ..*"). Moreover, claims 2 and 8 also provide support for the use of this term.

7.4 The deletion of "*polyvinyl alcohol*" from the list of the film-forming materials contained in independent Claims 1 and 13 does not pose any problem under Article

123(2) EPC, as the list remains generic (several listed items), and this material was not mandatorily required.

7.5 Claim 25 is based in Claim 39 as originally filed with the addition of the features taken from original Claims 7 and 11 or 23 and of the feature "*of less than 40 Coresta for sufficiently reducing ignition proclivity*".

7.6 Dependent Claims 2-8, 10-12 and 14-24 respectively correspond to granted Claims 3-6, 8, 10, 11, 13-15, 18-22 and 24-29, and are based on, respectively, original Claims 17-20, 22, 33, 24, 12-14, 27-31 and 33-38.

7.7 Therefore, in the Board's judgement, the claims of the First Auxiliary Request comply with Article 123(2) EPC.

8. Other formal requirements

No further formal objections against the amended claims at issue were raised. The Board sees no reason for raising formal objections against this set of claims.

First Auxiliary Request - Novelty

9. The opposing parties maintained a novelty objection based on E114 against Claim 1 of the First Auxiliary Request. In particular, they considered that the feature "*treated areas having a permeability of less than 40 Coresta*" was also disclosed in combination with the other features of Claim 1 at issue in Example 10-G of E114. This was disputed by the Respondent.

9.1 In Example 10-G of E114, a paper H having a permeability of 71 Coresta (hence > 60 Coresta) is coated with a composition comprising 21.36 weight

percent of Flokote-64 starch (national Starch Berkeley CA) in order to form bands of reduced permeability, thus of reduced IP.

9.2 The permeability of the bands formed on paper H is not mentioned in E114. The opposing parties relied, however, on the statement in Paragraph [0111] reading "Article 10-A, utilizing base paper A, had a measured band of permeability of about 5 CU", on the permeability value of 18 CU given for base paper A (Table 1) and on the general disclosure of E114 (Claim 65, paragraph [0034] and Tables 8 and 9. On that basis, they argued that the 70% reduction in band permeability achieved for paper A (from 18 to 5 CU) was also inevitably obtained for paper H, in line with the general teaching of E114. Hence, the permeability of the bands (treated areas) formed on base paper H (71 Coresta) was (implicitly) less than 40 Coresta. Consequently, Example 10-G was novelty destroying.

9.3 The Board is not convinced by this argument for the following reasons:

9.3.1 According to Paragraph [0110] (first sentence) of E114, "The IP and freeburn data in Table 18 demonstrate that at constant applied band composition, and application method, results may vary depending on the structure of the base paper. Articles prepared from the higher permeability papers, 10-E and 10-H *(sic)*, showed lower IP pass rates than articles 10-A through 10-F. Applicants believe that increasing the applied amount of the composition will increase the IP pas rate for higher base paper permeability types such as 10-E and 10-G).".

9.3.2 For the Board, it follows from these statements

- that Example 10 concerns the application of the same bands on base papers of different permeabilities, Example 10-G concerning paper H with a permeability of 71 Coresta; and,
- that the constant band composition applied on papers of different permeabilities does not produce the same IP pass rate, hence does not produce the same band permeability.

9.3.3 Also according to paragraph [0111] (first and second sentence), the application of the constant band composition to base paper A, perforated to have a permeability of 70 Coresta, resulted in bands having a permeability of 57 Coresta, i.e. higher than the maximum value required by Claim 1 at issue).

9.3.4 Hence, for the Board, E114 does not even implicitly disclose unambiguously that a reduction in permeability of 70% will necessarily be achieved when banding the base paper.

9.3.5 The subject-matter of Claim 1 at issue is thus novel over E114.

10. The Board is also satisfied that none of the other prior art documents relied upon by the opposing parties in the appeal proceedings discloses a wrapper with all the features of Claim 1 in combination.

11. In the Board's judgement, the paper wrappers of Claim 1 are novel (Article 52(1) and 54 EPC). The same is, consequently, true for
- the paper wrappers of dependent Claims 2 to 8,
- the smoking articles of Claims 9 to 12 which comprise a novel paper wrapper according to Claim 1, and
- the preparation processes of Claims 13 to 24 and 25,

resulting in paper wrappers with all the features of Claim 1.

First Auxiliary Request - Inventive step

12. The invention

The invention concerns a paper wrapper for a smoking article with reduced ignition proclivity (IP), i.e. with a tendency to self-extinguish upon being dropped or left in a free-burning state on combustible material (patent in suit, Claim 1, paragraphs [0001] to [0003]), a smoking article having reduced IP comprising such wrapper (Claim 9) and processes (Claims 13 and 25) for making such wrapper, especially when the latter have an initially high porosity (paragraph [0006]).

13. Closest prior art

13.1 At the oral proceedings before the Board, it was common ground between the parties that E1 represents the closest prior art. More particularly, they maintained that Example 1 of E1 is the most appropriate starting point for the assessment of inventive step, also with regard to the claims of the First Auxiliary Request.

13.2 Considering the similarities between the patent in suit and E1 in terms of technical problems addressed and subject-matter disclosed, the Board has no reason to take a different stance.

13.3 Indeed, Example 1 of D1 (column 7, lines 48 to 59) refers to the fabrication of smoking article paper wrappers providing reduced IP to smoking articles comprising such wrappers.

13.3.1 It describes the preparation of a "**base solution** of ethyl cellulose (about 25% by weight of solution) dissolved in a 60/40 mixture of normal propyl acetate and normal propyl alcohol", 3% by weight of clay was then added to this base solution (as a filler, see column 7, lines 4 and 5). A 10 mm band of this composition, still referred to as "solution" in E1, is then printed in a 3-pass process on a base "KC Grade 603 paper", having an initial average porosity of 32.6 Coresta. The "coat weight of the treated areas" was of 3.0 g/m^2.

13.3.2 The "solution" (composition) used for coating, i.e. the composition comprising solvents, the ethyl cellulose dissolved therein and the filler (see column 7, lines 9 to 16), has a measured viscosity of "45 seconds using a Zahn #2 Cup Viscosimeter" (Column 7, lines 43-44).

13.3.3 According to E1 (column 7, lines 57-59), the average permeability of the cigarettes (after banding) was 3.1 Coresta. 3 of 3 cigarettes tested "self-extinguished at or near the coated area".

13.4 It was common ground between the parties that E1/ Example 1 does not disclose the feature "*untreated areas having a permeability of greater than 60 Coresta*".

13.5 However, the parties took opposite views regarding the feature "*the film-forming material having a viscosity of less than 500 Cp when present in a 3% by weight solution at 25°C*". Whereas the opposing parties considered that E1/Example 1 disclosed the use of an ethyl cellulose having, **implicitly**, a viscosity as required by Claim 1 at issue, considering the measured

viscosity of the coating "solution" used (E1, Column 7, lines 43-44), this was disputed by the Respondent.

13.6 In respect of the allegedly implicit disclosure of the feature "*the film-forming material having a viscosity of less than 500 Cp when present in a 3% by weight solution at 25°C*" the Board considers the following:

13.6.1 The probative value of the measurements (E98 and E61) and the calculations (statement setting out the grounds of appeal, pages 19 and 20, in connection with E85, E90 and E91) invoked by the opposing parties (notice of intervention, Point 3.1, and oral proceedings) was called into question by the Respondent (letter dated 7 October 2015, e.g. Points 3.1.1 and 2.1.2, 2.1.2.3), 2.1.2.4; E80, Points VI.29 to VI. 29, 30, 31).

13.6.2 In this connection, the Board notes, on the one hand, that E98 does not expressly specify which particular ethyl cellulose was used (E98, page 10, Point 3). On the other hand, a specific ethyl cellulose of particularly low viscosity (4cP at 5%) was used according to E61 (point "1. Materials"; point 7, measured values). As pointed out in E80 (point 30) the viscosity (in solution) of ethyl cellulose may, however, vary considerably with molecular weight and degree of ethoxylation.

The Board concludes that the ethyl cellulose material referred to in E98 and E61 is not necessarily identical to the non-specified ethyl cellulose used of E1.

ii) Moreover, the Appellant's calculation of the ethyl cellulose viscosity (Statement, page 20) is based on a formula for converting Zahn Cup viscosities (in seconds) into kinematic viscosity values (in cSt),

which is taken from E85. This document describes how to measure the Zahn cup viscosity, but also makes it clear that a thermometer is needed during the measurement, because the temperature is to be recorded and, accordingly, to be indicated when reporting the viscosity value measured. However, E1 does not comprise such temperature indication. Moreover, said calculations are also based on solvent densities retrieved from E90 and E91, which are, however, only specified at one specific temperature (20°C).

13.6.3 As regards the allegedly implicit disclosure of the feature in question, the Respondent, also Assignee of E1, moreover convincingly pointed out the following:

i) At the filing date of E1, high viscosity polymers were used in compositions for coating paper wrappers with conventional printing machines. For instance, E14 mentions the use of alginates film-formers with rather higher viscosities (e.g. column 5, lines 28 to 31: 6000cP for a 2% solution at 25°C) to be used in gravure printing cigarette wrapper paper.

ii) E1 only refers to a controlled viscosity of the actual coating composition, and does not address at all the viscosity (in solution) of the film-forming polymer as such. Controlling the viscosity of the film-forming composition can, however, be achieved in other ways, e.g. by applying a higher temperature.

13.6.4 Hence, it cannot be unambiguously derived from E1 how the 25% by weight ethyl cellulose "base solution" was prepared and used, e.g. at what temperature, let alone whether the ethyl cellulose used had a viscosity of less than 500 cP when present in solution at 3 wt%.

13.7 Based on the above considerations, the Board concludes that the arguments and evidence provided by the opposing parties are not sufficient to discharge the burden, resting with them, of proving that E1/Example 1 **implicitly** discloses the use of an ethyl cellulose film-forming material having the required low viscosity (as defined in Claim 1 at issue), or to sufficiently corroborate the provisional presumption in this direction addressed by the Board in its provisional opinion, which can thus not be maintained.

13.8 In the present case, a reversal of the burden of proof as regards the implicit disclosure of a prior art document is not called for. Since the viscosity defined in Claim 1 at issue is **not** an unusual parameter (see point 18. *et seq.*, *infra)*, the present situation is different from that underlying decisions T 1764/06 and T 1920/09 invoked by the Appellant.

13.9 Hence,in the Board's judgement, the limitation of the film-forming material to be used in terms of its viscosity as defined in Claim 1 is indeed a feature further distinguishing the wrappers according to Claim 1 at issue from the ones disclosed in E1/Example 1.

14. The technical problem

At the oral proceedings before the Board, the Respondent accepted that, in the light of the closest prior art (E1/Example 1), the (least ambitious) technical problem solved could be seen in the mere provision of a further paper wrapper for a smoking article that provides the smoking article with sufficiently reduced ignition proclivity (as interpreted *supra*), not necessarily improved in comparison to the smoking articles of E1/Example 1.

15. The solution

As the solution to this technical problem, the patent in suit as amended proposes the paper wrapper as defined in Claim 1 of the First Auxiliary Request, which is characterised in particular

- by its "*untreated areas having a permeability of greater than 60 Coresta*";

and

- in that said "*treated areas*" are formed by coating the paper web with a composition comprising a"*film-forming material having a viscosity of less than 500 Cp when present in a 3% by weight solution at 25°C*".

16. The success of the solution

16.1 Considering the indications in paragraphs [0023], [0024], [0036] and [0047] of the patent in suit, and account being taken of the comparative examples filed by the Respondent for paper having initial permeability of more than 60 Coresta (E56, Samples 3, 4, 7, 10, 11; E81, Experiments 1 and 2), the Board accepts that said least ambitious technical problem (point 14, *supra*) is effectively solved across the whole breadth of Claim 1.

16.2 For the sake of completeness only, the Board also indicates herein below why the comparative examples E111 of the Intervener have no bearing on this conclusion of the Board:

16.2.1 These experiments comprise the preparation of a coating composition by diluting a composition comprising 25%wt of an ethyl cellulose of very low viscosity ("Aqualon

N4"; <5 cP at 3% and 25°C) and precipitated calcium carbonate as filler, the coating composition containing about 7 wt% ethyl cellulose and having a viscosity suitable for the printing machine. Bands having a permeability between 30 and 40 Coresta are printed on a base paper having an initial permeability of about 75 Coresta. Cigarettes made using wrappers of the coated base paper were found not to be of **l**ow **i**gnition **p**roclivity ("LIP" hereinafter), since none of the cigarettes made passed the Self-Extinguishing Test according to ASTM E2187-04.

16.2.2 These experiments are supposed to show that for one of the film-forming material classes (cellulosic derivatives) mentioned in Claim 1 providing bands with permeability higher than 30 (but below 40) Coresta on base paper with a high permeability of about 75 Coresta does not result in paper wrappers with reduced IP, although a film-forming material according to Claim 1 at issue was used.

16.2.3 The probative value of these comparative test results was called into question by the Respondent (letter of 20 June 2016, Point III.2.(3)), because the amount of the (normally required) burn control additive(s) that was added was not indicated, unlike in the patent in suit (paragraph [0042]) or in the Proprietor's test report E87.

16.2.4 For the Board it is not apparent in view of the missing indications regarding burn control additives, whether these experiments are in accordance with the patent in suit. It is, however apparent that they have not sought to reproduce any example of E1 either. Thus, these tests do not disprove that the less ambitious technical problem considered here (point 14, *supra*) is solved,

i.e. making available further paper wrapper providing "*sufficiently reduced*" IP within the meaning of the patent in suit (see Points 4.2, *supra*).

17. Non-obviousness

17.1 It remains to be decided whether starting from E1/ Example 1, the claimed solution would have been obvious to the skilled person seeking to solve the technical problem posed, having regard to the state of the art. More particularly, it has to be assessed whether and why the person skilled in the art would have been motivated to implement the two distinguishing features in the context of the wrapper fabrication disclosed in E1/Example 1.

17.2 Regarding the allegedly obvious use of untreated paper webs with a "*permeability of greater than 60 Coresta*", the opposing parties invoked the following:
i) The two statements in E1 (Column 5, lines 23-27),
- that the wrapper can include any commercially available cigarette wrapper, such as KC grade 603 paper by Kimberly-Clark corporation, and
- that "any other manner of paper web" might be used in this regard.
ii) The disclosure of E9 (or E10), as evidence of commercially available cigarette papers at the effective filing date of E1.
iii) The disclosures of E8, E14, E16, E20 and E42, to prove that at the priority date of E1 the skilled person knew how to coat bands having a permeability of less than 40 Coresta on base papers with an initial permeability higher than 60 Coresta.

17.2.1 As regards point i), *supra,* the Board notes that the first statement suggests using paper webs comparable to

KC grade 603 (the one used in Example 1), and the second statement generally hints at any paper web (fit for purpose in the eyes of the skilled person).

17.2.2 However, these statements in E1 refer to the embodiment illustrated generally in Figures 1 and 2 (see column 5, lines 19-23, i.e. the initial part of the paragraph in which the invoked statement is contained). These general statements only appear to concern the general construction of the cigarettes, and not the specific embodiment of Example 1, using a specific paper wrapper, onto which a specific coating composition is applied. A similar general statement in connection with drawings is contained in the patent in suit (paragraph [0037], last sentence).

17.2.3 Regarding point ii), *supra*, E9 *inter alia* discloses the following:
- One out of thirteen wood cigarette papers with a permeability greater than 40 Coresta and an initial porosity greater than 60 Coresta (80 Coresta, Grade 432) (pages 1-2).
- Two out of 20 Flax cigarette papers (>40 Coresta), namely Grades 508 and 672 with an initial porosity greater than 60 Coresta (page 5).
Grade KC 603 paper (as used according to E1) is mentioned among 30 Flax cigarette papers with a permeability of less than 40 Coresta (pages 3-4).

Similar information can be gathered from E10, which lists nineteen cigarette papers, three of them having an initial porosity greater than 60 Coresta.

Thus, E9 and E10 confirm that cigarette papers having an initial porosity greater than 60 Coresta were known and commercially available at the priority date of E1.

Consequently, using a cigarette paper with an initial porosity of greater than 60 Coresta was an option at hand for the skilled person starting from E1/Example 1 and seeking to prepare a further paper wrappers for cigarettes with reduced IP.

17.2.4 Regarding point iii) *supra*, the entire disclosure of E1 on the one hand, and of E8, E14, E16, E20 and E42 on the other hand is considered below, in the assessment of whether the skilled person seeking to solve the stated technical would have found a hint therein to adapt/implement the process of E1/Example 1 using a paper with an initial porosity greater than 60 Coresta and coating it with a film-forming material as defined in Claim 1 at issue.

17.3 Document E1

17.3.1 According to E1 (Column 5, lines 5-18), "ignition proclivity" is a measure of the tendency of the smoking article or cigarette to ignite a flammable substrate. A test for IP established by NIST (National Institute of Standards and Technology) is mentioned in E1 (column 5, lines 5 to 18). The very same test is also referred to in the patent in suit (paragraph [0023]), and comprises "*placing a smoldering cigarette on a flammable test fabric and recording the tendency of the cigarette to either ignite the test fabric, burn the test fabric beyond a normal char line of the fabric, burn its entire length without igniting the fabric, or self-extinguish before igniting the test fabric or burning its entire length*".

17.3.2 In particular, E1 discloses the following:
- The treated areas may be formed using a film-forming aqueous composition (Claim 19), including aqueous

solutions of e.g. alginate, pectin, carboxymethyl-cellulose and polyvinyl alcohol, or with a non-aqueous solution of a solvent soluble cellulosic polymer dissolved in a non-aqueous solvent (Claim 20), such as ethyl cellulose in a concentration of about 15 to 35% by weight of solution (Column 4, lines 44-65, particularly Column 6, lines 43-48).
- The discrete areas of reduced permeability comprise an area of maximum reduced permeability of less than 6 $ml/min/cm^2$ (Coresta) (Claim 22), generally within a range of 2 to 6 Coresta. This range provides desired self-extinguishing results as the cigarette burns into the treated areas (Column 5, lines 59-61).
- The paper should be effective in reducing IP while minimizing discernible changes in smoke delivery and taste to the smoker, i.e. noticeable changes in the smoking characteristics of cigarettes, as the coal burns into the treated areas should be minimised (Column 2, lines 22-38).
- The width and spacing of the bands are dependent on a number of variables, such as the initial permeability of the the wrapper, i.e. the band width should be sufficient for reducing the oxygen to the burning coal, so that the coal extinguishes (paragraph bridging columns 5 and 6).
- If necessary, the areas of changing permeability could have relatively smooth or flat profile, such as a ramp-up and a ramp-down profile (see Example 9), whereby, the treated areas could be applied in multiple or single pass operation depending on the amount of the solution applied and the viscosity of solution (Column 11, lines 3-18).
- A non-aqueous solvent tends not to disrupt the inter-fibre bonding of the paper web, thus does not significantly decrease the strength of the paper web (Column 6, lines 28-30).

- "The viscosity of the solution is controlled ... to be suitable with the high-speed printing techniques", including gravure and flexographic printing (column 7, lines 23-30).
- The desired target permeability range (i.e. 2 to 6 Coresta) is readily achieved by applying the solution to the treated areas in multiple passes with conventional printing machines, or in a single pass and controlling the viscosity and the amount of the solution applied (Column 7, lines 23-37).

The Board notes once more that in the last passages the "solution" referred to is the coating composition actually used (comprising solvent(s), film-former and filler), and not a solution of film-forming material in a solvent as referred to in Claim 1 at issue in connection with the definition of the film-former to be used.

17.3.3 The Board holds that from these parts of the general disclosure of E1 the skilled person merely gathers the following:
- The target permeability range of the treated areas (2 to 6 Coresta) should be attained while preventing noticeable changes in smoke delivery and taste to the smoker.
- The use of a non-aqueous solvent is preferable.
- The target permeability of the treated areas can be achieved in multiple passages or in one passage.
- The viscosity of the "solution" (composition) and the amount thereof (to be) applied in one pass should be controlled to meet the requirements of the conventional printing machines.

17.3.4 As regards the viscosity of the coating "solution" (composition), E1 only mentions the

following values in its examples concerning the coating of paper having a permeability of about 32 Coresta:
- 45 seconds using a Zahn #2 cup Viscosimeter (Column 7, lines 44-45, as applicable to the compositions of Examples 1 to 7); and,
- 39 cup seconds for the filler-containing coating "solution", applied in Example 9.
These viscosity values differ substantially, and the temperature at which they were measured is not indicated, despite the known (significant) temperature-dependency of viscosity.

17.3.5 The person skilled in the art would thus not find any general indication in E1 on **how** to control or set the viscosity of a coating composition to be applied on a base paper web with a permeability greater than 60 Coresta.

17.3.6 More particularly, all the examples of E1 refer to the coating use of KC Grade 603 having an (untreated) permeability of about 33 Coresta. Hence, the Board holds that the indication in Column 5, lines 19 to 27, of E1, that "any other manner of paper web may be used" in providing wrappers for cigarettes with the intended "improved ignition proclivity", merely suggests to the person skilled in the art the possible use of base paper webs of comparable properties, in particular in terms of permeability, requiring little or no change of the process for making the coated wrapper. Exchanging the exemplified KC grade 603 paper by such a comparable paper would result in a further coated wrapper, but not in a wrapper with untreated areas having permeability greater than 60 Coresta.

17.3.7 In view of the contrasting requirements expressed in E1, i.e.

- the need to provide reduced IP to the smoking article comprising the wrapper by virtue of a difference in permeability of treated and untreated bands,
- without, however, creating noticeable differences in terms of taste and smoke delivery,
the Board is not convinced that the skilled person would, absent any hint to this end in E1, and without hindsight, obviously consider applying the same coating composition as used in Example 1 to a base paper web with a porosity higher than 60 Coresta, i.e. twice as high as as the one of the base paper exemplified in E1.

17.4 Other Documents invoked

17.4.1 E20, published in 1987, addresses the problem of manufacturing smoking rods having a wide variety of ventilation characteristics, thereby permitting the production of optimum combinations of any or all of flavour, strength, tar, carbon monoxide or nicotine levels at any particular stage in the combustion of the smoking rod (page 5, lines 3-10). Hence, E20 does not appear to concern primarily the manufacture of paper wrappers providing reduced ignition proclivity.
Moreover, E20 *inter alia* discloses unperforated smoking rod wrappers, the porosity of the uncoated wrapper being 30 to 150 Coresta (paragraph bridging pages 14 and 15), to which certain compositions are applied, preferably in form of a solution. Said compositions contain 0 to 20% by weight of a polymeric binder and 80 to 100% by weight of a non-polymeric material that is solid at 30°C and melts between 30 and 150°C (page 5, lines 11-20). According to E20, the preferred polymeric binders are materials expressly stated to have "poor film-forming characteristics" (page 10, lines 11 to 16), such as "low-molecular weight" hydroxypropyl cellulose, methyl cellulose and, preferably,

hydroxyethyl cellulose. Other suitable binders include ethylene vinyl acetate copolymers and polyvinyl alcohol (page 10, lines 11-16), i.e. polymers not listed in Claim 1 at issue. Example 1 of E20 describes *inter alia* papers having a porosity of 80 and 135 Coresta coated with a composition comprising 90% by weight of palmitic acid and 10% by weight of ethyl cellulose. Hence, E20, which aims at increasing the porosity of the paper in the treated areas upon exposure to increased temperature (burning tip approaching; page 5, lines 23-30), does not orient the person skilled in the art towards the use of film-forming ethyl cellulose (or of one of the other film-forming materials listed in claim 1 at issue) having a viscosity as defined in Claim 1 at issue for coating papers with permeability greater than 60 Coresta in order to reduce porosity.

17.4.2 E8, like E20, does not appear to be primarily concerned with reducing the IP of the wrappers described. It discloses unperforated wrappers typically having a porosity value below 200 Coresta (Column 1, lines 23-26) comprising coated areas having a permeability reduced down to less than 67% (column 2, lines 18-20), for altering the tar delivery profile of the wrapper (column 1, lines 24 to 35; column 1, line 56, to column 2, line 10). E8, like E20, teaches providing the coated areas by printing onto the base paper a solution or dispersion (column 4, last paragraph) of a coating composition containing (paragraph bridging columns 3 and 4) essentially only a polymeric binder such as starch or cellulose polymer or derivative, e.g. ethyl cellulose, polyvinyl alcohol or, preferably, an ethylene vinyl acetate copolymer, and optionally burn promoter. Examples 1 and 2 of E8 illustrate *inter alia* the coating (by printing in a dot pattern) of base papers with a porosity of 80 or 135 Coresta, but with a

solution of ethylene vinyl acetate copolymer in ethanol. Thus, E8 does not orient the skilled person towards the use of ethyl cellulose (or one of the other film-forming polymers listed in Claim 1 at issue) having a viscosity as defined in Claim 1 at issue, as film-forming material.

17.4.3 E14, like E38, is concerned with the preparation of wrappers for smoking articles, comprising treating the paper with a coating composition comprising alginates, the solutions of which at 3 wt% have viscosities well above 500 cP at 25°C (E14, Column 5, lines 26-32, E38, Page 5, lines 3 to 5: 400cP at 1% and 25°C and 6000 cP at 2% and 25°C). The treated areas generally have a permeability of less than 8 Coresta (E14, Column 4, lines 13-17), which is at least about 75% less than the permeability of the uncoated areas (Claim 2). The base papers used in the examples have a permeability of less than 60 Coresta (see Table I).

Hence, even assuming *arguendo* that that the authors of E14 also envisaged the use of base paper webs with permeabilities as high as, or even greater than, 60 Coresta, this document still suggests the use of alginates with viscosities higher than the upper limit required according to claim 1 at issue. Thus, a combination of E1 (Column 4, lines 57-59: reference to alginates) and E14 (Column 5, lines 26-32) would not lead to the claimed subject-matter E14, as well as E38, published before the priority date of E1, rather appear to confirm the position held by the Patent Proprietor, that polymers of relatively high viscosity were used as film-forming materials at the filing date of E1, on the paper of the type used according to E1 (E38, page 6, last line).

17.4.4 E16 (see e.g. Example 4) teaches coating or saturating wrapper base paper for LIP cigarette papers with film-forming materials such as methyl cellulose and carboxymethyl cellulose, starches and chemically modified starches, e.g. hydroxyethyl starch, guar gum or other vegetable gums. There is no indication regarding the viscosities of the film-forming materials to be used, or the treatment of base papers with a permeability greater than 60 Coresta. The permeability values of the base papers used appears to be much lower than 60 Coresta (see e.g. the examples and Table 1).

17.4.5 E42 (Column 4, lines 5-7) discloses that the porosity of a base wrapper paper normally found in smoking articles such as cigarettes is about 25-60 Coresta. The use of base papers with a permeability greater than 60 Coresta is thus not addressed. Also, the examples only illustrate the coating of papers of 40 Coresta with cellulosic materials (such as fibres or microcrystalline cellulose) to form bands of reduced permeability.

17.5 Summing up, the Board concludes that the person skilled in the art would not have found a hint in E1 itself, or in any of E8, E9, E10, E14 (or E38), E16, E20 and E42, to coat high porosity base paper (>60 Coresta) with a coating composition comprising, as the film forming material, an ethyl cellulose, or another polymer from the classes referred to in Claim 1 at issue, having a low viscosity as defined in Claim 1 at issue, to thereby obtain further wrappers providing sufficiently reduced ignition proclivity to smoking articles.

17.5.1 In other words, even taking into account all the information presented in the prior art, in particular E1, E8, E9, E10, E14, E16, E20 and E42, the person

skilled in the art seeking to solve the least ambitious technical problem posed would not, without hindsight, arrive at a paper wrapper falling within the ambit of Claim 1 at issue in an obvious manner.

17.5.2 Therefore, the Board need not even consider whether document E101 (e.g. Column 4, line 60, to Column 5, line 24), invoked by the Patent Proprietor, would also have dissuaded the skilled person from applying the coating composition of Example 1 of E1 to a base paper with a porosity of higher than 60 Coresta, to sufficiently reduce its permeability.

17.6 Since the claimed subject-matter is not even obvious when considering said least ambitious technical problem solved, there is no need for the Board to investigate further whether the claimed invention also brings about some concrete improvement over the wrappers disclosed in E1/Example 1.

17.7 In the Board's judgement, the paper wrappers of Claim 1 thus involve an inventive step (Article 52(1) and 56 EPC). The same is, consequently, true for
- the paper wrappers of dependent Claims 2 to 8,
- the smoking articles of Claims 9 to 12 which comprise a non-obvious paper wrapper according to Claim 1, and
- the preparation processes of Claims 13 to 25 resulting in paper wrappers with all the features of Claim 1.

17.8 It is readily apparent from the above that the question whether the 3% by weight "*solution*" used in determining the viscosity of the film-forming polymer may also be a a "colloidal solution" as argued by the Proprietor, has no bearing on the Board's finding regarding inventive

step in the light of the prior art cited.

Sufficiency of the disclosure

18. The insufficiency objections maintained by the oppositing parties are three-fold:

18.1 The patent in suit allegedly contained contradictory and too unspecific information as regards the nature and measurement of the viscosity value. This viscosity feature of Claim 1 was thus ill-defined.

18.2 The viscosity measure could not be carried out without undue burden, as the patent did not disclose any method therefor. Hence, this parameter could not be used to identify film-forming polymers, let alone mixtures thereof, suitable for the purposes of the inventions.

18.3 The method for the measure of the BMI value defined in the claims depended on test conditions that could not be deduced from the patent in suit taken in its entirety.

18.4 Regarding the first objection (point 18.1, *supra*)

18.4.1 For the Board, in the context of the claims at issue, the wording "*the film-forming material having a viscosity of less than 500 cP when present in a 3% by weight solution at 25°C*" expresses that the "*film-forming material*" is defined by the viscosity of a "*solution*" containing it, and that this viscosity value must be below the upper numerical limit of 500, expressed in terms of the perfectly conventional unit "*cP*" (E63, Introduction). The viscosity value is to be measured at a specified temperature (25°C), and at a specified, low concentration (3% by weight) of the

macromolecular "*film-forming material*".

As indicated in the description, a Brookfield LVF type viscosimeter is to be used.

18.4.2 It is generally known, and not in dispute, that such measured viscosity values may be quite sensitive to temperature changes.

18.4.3 The viscosity criterion to be met by the film-forming material is thus defined in terms of a "single point test" (one value, at one temperature and one concentration). Manufacturers of polymeric film-forming materials also typically characterise their products in this manner. This is illustrated *inter alia* by E32 (viscosity of a gum arabic product), E48 (see in particular the sales specification (for "Manucol LB", a material mentioned in paragraph [0030] of the patent in suit, for "Ethylcellulose AQUALON®" and for "Rhodoviol 30/5)", E59 (pages 16, 17, 22 and 23; viscosity and molecular weight of alginate film formers), E60 (factors affecting the viscosity of alginate solutions, including molecular weight; Table 2), E61, E62, E70 and E134.

In some of these documents the appropriate spindle (number) and speed used in the measurements with a Brookfield viscosimeter are also expressly indicated. Apparently, appropriate spindles/speeds may vary depending on the type of solution/material investigated.

18.4.4 The omission, in the claims at issue, of further details in this respect obviously reflect the fact that several different types of film-forming materials are

listed, each of these material requiring appropriate spindle and speed settings, respectively.

The Board holds that such appropriate settings can, however, be obtained from the manufacturer of the film-forming macromolecular material, or, if not available, identified by means of a few routine trials, following also the indication in the instruction manual of the Brookfield viscosimeter used. It has not been shown by means of suitable evidence, that the skilled person could not get, from manufacturers of the film-forming material, the missing indications. E97, for instance, does not mention the characteristics obtainable from the manufacturer for the materials tested, such as the alginate Reno 4729. Instead, the experimental reports E99 and E111 appear to confirm that it was possible to retrieve such information.

18.4.5 Moreover, characterising a polymeric material by a single-point test of its viscosity in solution does not appear to be uncommon either in the drafting of patent applications. This is apparent e.g. from E6 (Column 1, lines 50-52) or E7 (Column 4, lines 26-35) relating to coatings, which do not not stem from the Patent Proprietor.

18.4.6 Hence, for the Board, Claim 1 does not define the film-forming material in some uncommon manner, and the viscosity parameter is thus not "ill-defined".

18.5 Regarding the second objection (point 18.2, *supra*)

18.5.1 The Board accepts that neither the claims nor the description of the patent in suit prescribe or require a complete rheological characterization of the film-forming material.

18.5.2 The patent in suit essentially concerns the coating, using conventional techniques, of discrete areas of paper wrappers for smoking articles with a film-forming composition for reducing their IP. Hence, the patent is directed to the person skilled in the art of such coating techniques, including the formulation of suitable coating compositions, rather than to a specialist in rheological characterizations of film-forming materials. The "*film-forming material*" referred to in the claims at issue is thus an ingredient of the coating composition which need not necessarily be manufactured and/or characterized by the person skilled in the art relevant himself when putting into practice the invention.

18.5.3 It is not in dispute that film-forming materials as referred to in the claims and disclosed in the patent were commercially available. This is, for instance, apparent from paragraph [0030], last sentence, of the patent. E111 (page 2, third paragraph) actually confirms that the Intervener was able to get hold of commercially available film-forming material of very low viscosity, clearly fulfilling the requirement of Claim 1 at issue.

18.5.4 Despite this clear reference to commercially available materials in the patent in suit, the opponents have not attempted to show by means of evidence such as declarations by the manufacturers of the film-forming materials, that the skilled person would not be able to get hold of commercially available, low viscosity film-forming materials fulfilling the single-point test defined in the claims and of the relevant information on the viscosity thereof.

This lack of proof *prima facie* weakens the

insufficiency objections raised.

18.5.5 In order to prove insufficiency, the opposing parties filed, instead, expert opinions, and carried out experiments, in which the rheological behavior of various materials of the types listed as film-formers in the claims at issue was investigated in solutions and dispersions.

i) The objections raised in this connection are based in particular on an alleged lack of information, regarding in particular the spindle number and speed, and other operating conditions such as solvent, time, presence of salts, pH, to be used when measuring the value of the "*viscosity*" referred to in the claims.

Moreover, it was invoked that depending on the shear stress applied and other conditions (e.g. presence of salts, pH, time) having a bearing on the measured viscosity, a same given film-forming material could be found to meet and not to meet the viscosity criterion according to claim 1. The viscosity feature was unclear in this respect, and the disclosure was, therefore, insufficient in this respect.

ii) However, the conditions used in some of the experiments, as regards water hardness, presence of salts, pH (e.g. very low pH values for alginic acid in E48; very low and very high pH values, as well as hard water, in E97; presence of salt in the solvent for the alginates in E89), are, at least as regards the alginates, not recommended by the manufacturer of the (alginate) film-forming material. This is apparent for instance from E60 recommending to sequester the calcium ions, if present, i.e. if hard water is used (see Point 6 and Figure 4; Table 2, showing the effect of

molecular weight; pages 6 to 8, Figures 2, showing the effect of concentration; effect of temperature, effect of pH (e.g. between 4.5 and 10), effect of monovalent and polyvalent cations).

The fact that E60 is post-published does not detract from the clear disclosure of the influence of the operating conditions on the viscosity given therein. That these influences were generally known to the manufacturer before the priority date of the patent, which mentions commercially available alginates, is not in dispute. Hence, E60 proves that the film-forming manufacturer (e.g. of alginates) could have provided all items of information as required by Claim 1 at issue for the single-point viscosity of the film-forming material. E60 deals with materials for the intended applications detailed therein, inter alia film-forming, see Table 1. This is explicitly confirmed in E59, pages 16-21, particularly page 17, point B, last sentence).

iii) Furthermore, as to the pH to be applied, the patent (paragraph [0012], penultimate sentence) indicates a pH for the film-forming composition of 4-7.5, fully within the range also recommended by E60. The Board thus holds that since the patent in suit discloses a pH range of the coating composition to be applied, the viscosity of which should be controlled also by the choice of the film-forming material, the skilled person trying to reproduce the invention would have no reason to use pH values outside these limits in measuring the viscosity of alginate film-formers.

18.5.6 The Board is, however, convinced that even if the person skilled in the art were obliged to carry out a viscosity measurement himself in view of a possible

lack of available data, he would be to able to determine the viscosity value as defined in Claim 1 without undue burden. Indeed, as shown by test reports such as E61 (Point 7, measured values; E79 (Tables 1 and 2), E83 (Tables), the result of such a measurement are relatively independent from the measurement conditions (spindle/speed) too.

18.5.7 In any case, the claims only require said viscosity value to be lower than the specified threshold value of 500 cP, and it has not been convincingly established that the person skilled in the art would not be able to identify, or let identify, without undue burden, soluble film-forming materials of the types listed in the claims having a viscosity (in a 3% solution at 25°C, using a Brookfield viscosimeter) which is, with certainty, below said threshold value. As a case in point (compare Probe A1 with Probe D), E97 appears to show that the skilled person could get hold of film-forming materials clearly falling below the threshold value.

18.6 Regarding the second objection as far as specifically relating to mixtures (point 18.2, *supra*)

18.6.1 According to this objection, based in particular on E94 (in which a mixture CMC/sodium alginate was tested), the patent contained insufficient information regarding suitable film-forming materials which are mixtures of the film-forming materials listed in the claims.

18.6.2 In this respect, the Board holds the following:

i) In Claim 1 at issue, a distinction must be drawn between, on the one hand, the requirement that the "*film-forming material*" used must (as such) have a

viscosity (in a 3 wt% solution at 25 °C) within the given range and, on the other hand, the requirement that the "*coating composition compris*[es] *a film-forming material contained in a solution*", which film-forming material may be a mixture of the materials listed in the claim. Said composition is defined in terms of its minimum solids content (in terms of "*film-forming material*") but there is no specific requirement in Claim 1 concerning the viscosity of the "*coating composition*".

The criterion to be respected is the upper limit of the viscosity of the "*film-forming material*" as defined in claim 1. Also when a mixture of film-forming materials is to be used, relevant viscosity data can be obtained from the manufacturer of the individual components said mixture and/or may be determined and/or complemented by performing measurements on the specific mixed film-forming material to be assessed. Apart from E94, the contrary has not been sought to be proven.

ii) E94 is contested by the patent Proprietor on the ground that unreasonable conditions have been chosen, at the upper edge of the claimed range (letter dated 7 October 2015, Points 2.1.2.2 1), 2.1.2.4 1) and 2)). As an example of such unreasonable conditions a spindle LV2 at 6 rpm is mentioned (table on page 13 of the said letter). According to the Patent Proprietor, a speed of 6 RPM is only suitable for spindle LV1. This would explain the outlying values.

iii) As regards in particular experimental report E94, the Board notes the following:
- This document describes the use film-forming materials identified only by their commercial names. No information is given regarding the respective (single-

point) viscosity values of the individual materials , as potentially obtainable from the manufacturer.
- Some of the alginate experiments of E94 are carried out under conditions clearly not recommended by E60 for alginates, i.e. using hard water without a sequestering agent (see table 5.1 of E94; E60, Point 18.5.5. ii), *supra*), and are thus hardly of any probative value.
- The experiments carried out with alginates in demineralised water appear to essentially result in measured viscosity values as required by Claim 1 at issue for the majority of the spindles used.
- It thus appears from E94 that the use of some particular spindle/speed combination may lead to an uncertainty in the measure at the edge of the claimed range, which is not yet a proof of insufficiency. It is not clear that the skilled person would actually use all of the shown combinations.

iv) For the Board, the opposing parties have not shown that a person skilled in the art could not obtain information from the manufacturers concerning the viscosity behaviour of commercially available film-forming polymers, alone and/or in a mixture, or that the measure of the viscosity of a mixture amounted to an undue burden.

18.6.3 Thus, in the Board's judgement, the experimental evidence and opinions submitted by the opposing parties, considering that its probatory force which was called into question by the Patent Proprietor, do not convincingly establish that the skilled person would not be able to get hold of film-forming material mixtures as defined in claim 1.

What the evidence submitted rather appears to prove is that the film-forming materials listed in the claims

may indeed by be characterized in terms of their viscosity determined in solution.

18.6.4 The Board does not exclude that, at least as far as some film-forming materials and/or measuring conditions are concerned, there may be "grey" areas of uncertainty at the borders of the claims at issue, in the sense that in some cases (with measured viscosity values near the upper limit of the claimed range) it may be difficult to conclude whether or not a given film-forming material, or a mixture of such materials, meets the viscosity criterion.

The Board does not, however, consider that such unclear boundaries of the claimed subject-matter necessarily amount to an insufficiency of the disclosure. Rather, such unclear boundaries go to the detriment of the Patent Proprietor when it comes to an assessment of novelty and inventive step, see e.g. T 482/09 of 14 July 2011, Reasons 2.1.

Since in the present case the lack of clarity invoked (i.e. the existence of such a "grey" area at the edge of the viscosity value) does not permeate the entire ambit of the claims, the skilled person is not deprived of the benefit of the invention (see T 593/09 of 20 December 2011, Reasons 4).

On the contrary, the Board is fully convinced that film forming materials of all types listed in claim 1, including mixtures, which can be dissolved in a concentration of 3 wt% at 25 °C and have a viscosity as defined in claim 1 which is - with certainty - below 500 cP, (were)are available to and identifiable by the person skilled in the art, thus permit carrying out the fabrication of a paper wrapper as claimed.

18.7 Regarding the third objection (Point 19.3, *supra*)

18.7.1 The objection concerning the alleged lack of detail given in the patent regarding the measuring of the "*BMI*" (Burn Mode Index) value referred to in the claims was apparently raised for the first time in the statement setting out the grounds of appeal of Opponent 02. The objection is supported by E92, E93 and E95.

The Patent Proprietor did not question the admissibility of this objection, and took exhaustively position on the respective arguments.

The Board thus admitted and considered the arguments and documents associated with this objection (Article 114(2) EPC and Article 12(4) RPBA).

18.7.2 The objection is based on an alleged lack of disclosure of some particulars of the method of measure, voltage and time at which the relevant value is read, which, according to E92 (voltage) and E93 or E95 (time of the measurement) influence the determination of the BMI.

18.7.3 The test for determining the BMI value of the paper wrapper is dealt with in paragraph [0048] of the patent in suit, in which E103 is specifically acknowledged as describing the relevant test. Hence, the content of E103 is also be considered.

18.7.4 E103 describes the test method (Column 3, lines 23-52) and the relevant equipment (Figure 1). E103 merely requires the paper sample to be "supported" by the lower electrode and to be "in contact" with both electrodes (see in particular in lines 39-41 and 49-51 of Column 3). Indeed, there is no mention of any particular tension value (voltage) to be applied to the

paper sample in E103 or in the patent in suit.

The skilled practitioner is, however, not necessarily lost for the following reasons:

E92 (Last Table on Page 4) shows that, for the treated areas, a voltage variation from 1 to 10V only slightly affects the measured BMI values (from 2.6 to 2.9). All the BMI values reported in this document are within the claimed range. Hence, it is not immediately apparent that the influence of the voltage is so important as to prejudice the determination of the BMI. The only concern of the opposing parties, again, appears to be related to a possible grey area of values falling around the limits specified in the claims, which as stated above is not yet an insufficiency per se.

18.7.5 Opponent 02 also referred to, on the one hand, E93 (originating from the inventor indicated in E103) and argued that a skilled person considering E93 (page 7) would carry out a number of measures at different times, whereby the extrapolated value corresponding to t=0 would represent the sought-for BMI value. On the other hand, in E95 (page 1 and slide 11), a document of the Patent Proprietor, it was stated that the measure should be carried out after 3 minutes.

However, it is not contested that series of measurements as mentioned in E93 and E95, i.e. the very method of E103, can as such be carried out by a person skilled in the art.

18.7.6 As regards E93, the Board holds that the person skilled in the art will gather the following information from this document (description on page 7 and Figures 3 and 5): During the measurement, there is an initial quick

increase of the conductivity, due to the replacement of air with the test solution. This is followed by a slow increase, due to the fact that the non-aqueous solvent is nevertheless not completely inert, i.e. it swells the paper. From Figure 5 it is apparent that the measure corresponding to the rapid increase of conductivity (about the first three minutes) is not considered, since the value extrapolated to t=0 is the slope of the slow increase line, i.e. what comes about after three minutes (the use of the extrapolation to zero is also mentioned on page 7, last sentences of the last paragraph before "Advantages/disadvantages ...").

Slides 9 to 11 of E95 do not contradict E93 in this respect. Indeed, by referring to the value taken after three minutes, E95 too clearly teaches to disregard values measured during the initial displacement of air and its replacement with the ionic solution. In fact, with reference to Figure 5 of E93, the value extrapolated to t=0 and the value taken after about three minutes and the reading after three minutes are only slightly different.

18.7.7 Based on these considerations, the Board holds that the opposing parties did not convincingly discharge the burden, resting on them, of proving that the skilled person, using the test described in E103, in particular applying, based on technical common sense, an appropriate measuring voltage in the range between 1 and 10, and disregarding the initial quick increase in conductivity when taking the measurement, would not be able to determine in a reproducible manner the relevant BMI value of the treated areas.

18.7.8 The Board accepts that based on the indications given in E92, E93 and E95 as regards an appropriate measuring

voltage and time, it may be difficult in some specific instances to conclude, with the required degree of certainty, whether or not the "*treated areas*" of the paper wrapper meet the criterion relating to the BMI value. In particular with measured BMI values close to one of the numerical limit(s) specified in the claims, it may thus happen that the skilled person does not know whether or he is working within the ambit of the claims.

However, as in the case of the viscosity feature, it was not established that some ambiguity possibly arising at the boundaries of the claimed subject-matter would totally deprives the person skilled in the art from the promises of the invention.

18.7.9 At the oral proceedings, the Appellant (Opponent 02) contended that this conclusion, envisaged in the Board's communication, amounted to a *de facto* acknowledgement of insufficiency, and sought to re-open the debate after the Board had indicated its view that the sufficiency requirement was met and had closed the debate on this issue.

The Board did not, however, re-open the debate on this issue because it found the objection of the Appellant clearly unconvincing.

18.7.10 The Board thus concludes that the insufficiency objection raised with respect of the BMI value is also not convincing.

18.8 In the Board's judgement, the claimed invention is thus disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC).

Conclusion

19. The claims according to the First Auxiliary Request are allowable.

Order

For these reasons it is decided that:

1. The intervention is admitted.

2. The decision under appeal is set aside.

3. The case is remitted to the department of first instance with the order to uphold the patent on the basis of:
- Claims 1-25 according to the First Auxiliary Request filed 2 September 2016,
- Figures 1-3 of the patent as granted, and a
- Description to be adapted thereto.

The Registrar: The Chairman:

D. Magliano B. Czech

Decision electronically authenticated