

**Internal distribution code:**

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

**Datasheet for the decision  
of 19 May 2020**

**Case Number:** T 2182/17 - 3.3.03

**Application Number:** 12728340.6

**Publication Number:** 2721075

**IPC:** C08B11/193, A23L11/00,  
C08B11/20, C08L1/28, A23L29/219

**Language of the proceedings:** EN

**Title of invention:**  
FOOD COMPOSITION COMPRISING A CELLULOSE ETHER

**Patent Proprietor:**  
Dow Global Technologies LLC

**Opponent:**  
Shin-Etsu Chemical Co., Ltd.

**Relevant legal provisions:**  
RPBA Art. 12(4)  
RPBA 2020 Art. 25(2)  
EPC Art. 123(2), 100(b), 54(2), 56

**Keyword:**

Documents not admitted by opposition division - not admitted - discretion exercised in appropriate manner

New document submitted on appeal - not admitted - lack of justification

New document submitted on appeal - admitted - legitimate and direct submission

Amendments - allowable (yes)

Sufficiency of disclosure (yes)

Novelty - (yes)

Inventive step - (yes)

**Decisions cited:**

G 0007/93, G 0002/10



**Beschwerdekammern**

**Boards of Appeal**

**Chambres de recours**

Boards of Appeal of the  
European Patent Office  
Richard-Reitzner-Allee 8  
85540 Haar  
GERMANY  
Tel. +49 (0)89 2399-0  
Fax +49 (0)89 2399-4465

**Case Number: T 2182/17 - 3.3.03**

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 19 May 2020**

**Appellant:**

(Opponent)

Shin-Etsu Chemical Co., Ltd.  
6-1, Ohtemachi 2-chome  
Chiyoda-ku  
Tokyo 100-0004 (JP)

**Representative:**

Grünecker Patent- und Rechtsanwälte  
PartG mbB  
Leopoldstraße 4  
80802 München (DE)

**Respondent:**

(Patent Proprietor)

Dow Global Technologies LLC  
2040 Dow Center  
Midland, MI 48674 (US)

**Representative:**

f & e patent  
Fleischer, Engels & Partner mbB, Patentanwälte  
Braunsberger Feld 29  
51429 Bergisch Gladbach (DE)

**Decision under appeal:**

**Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
18 July 2017 concerning maintenance of the  
European Patent No. 2721075 in amended form.**

**Composition of the Board:**

**Chairman**

D. Semino

**Members:**

F. Rousseau

W. Ungler

## Summary of Facts and Submissions

I. The appeal is against the interlocutory decision of the opposition division posted on 18 July 2017 according to which European patent No. 2 721 075 as amended according to the main request met the requirements of the EPC.

II. The main request was based on claims 1 to 15 submitted with letter of 8 September 2016 and a description adapted thereto submitted with letter of 19 April 2017. Claims 1, 12 and 14 of the main request read as follows (for ease of understanding the Board has indicated by comparison to the text as filed the amendments carried out in **bold** which amendments consist of additions):

"1. A food composition comprising a cellulose ether, wherein the ether substituents in the cellulose ether are methyl groups, hydroxyalkyl groups, and optionally alkyl groups being different from methyl, the cellulose ether has a DS(methyl) of from 1.65 to 2.20, an MS(hydroxyalkyl) of from 0.10 to 1.00, and hydroxy groups of anhydroglucose units are substituted with methyl groups such that  
[s23/s26 - 0.2\*MS(hydroxyalkyl)] is 0.35 or less,

wherein s23 is the molar fraction of anhydroglucose units wherein only the two hydroxy groups in the 2- and 3-positions of the anhydroglucose unit are substituted with methyl groups and

wherein s26 is the molar fraction of anhydroglucose units wherein only the two hydroxy groups in the 2- and 6-positions of the anhydroglucose unit are substituted with methyl groups,

**wherein the cellulose ether is present in an amount of from 0.05 to 10 percent, based on the weight of the food composition.**

12. Use of a cellulose ether set forth in any one of claims 1 to 6 for improving one or more of the properties of a food composition selected from cohesion, firmness, juiciness, freeze thaw stability or texture; resistance to shrinking during cooking, or boil-out control, **wherein the cellulose ether is incorporated in the food composition at a level of 0.05 to 10 percent, based on the weight of the food composition.**

14. A method of improving one or more of the properties of a food composition selected from cohesion, firmness, juiciness, freeze thaw stability or texture; resistance to shrinking during cooking, or boil-out control, which method comprises the step of incorporating a cellulose ether set forth in any one of claims 1 to 6 into the food composition **at a level of 0.05 to 10 percent, based on the weight of the food composition."**

Claims 2 to 11, 13 and 15 whose wording is identical to the corresponding claims as filed are dependent claims of claim 1, 12 and 14, respectively.

III. The patent proprietor had also submitted *inter alia* with letter of 26 May 2017 auxiliary requests 1 and 2 whose wording is not relevant for the present decision.

IV. The following documentary evidence was submitted *inter alia* before the opposition division:

D1: WO 2012/051035 A1

D1a: US 61/392,079

D2: WO 00/59947 A1

D3: WO 02/094882 A1

D8: MS & DS Conversion of HPMC from wt% of substitution

D9: Excerpt of US file wrapper 13/825697 (Response to the Official Action dated of 18 September 2015)

D10: Excerpt of US file wrapper 13/825697 (Declaration pursuant to 37 CFR § 1.131 dated 3 December 20015 and Annex A)

D11: METHOCEL Cellulose Ethers, Technical Handbook, Dow, 2002

- V. According to the reasons for the decision the insertion in claim 1 of the patent as granted of the feature "wherein the cellulose ether is present in an amount of from 0.05 to 10 percent, based on the weight of the food composition" disclosed on page 10, lines 21-23 of the application as filed and the analogous modification in independent claims 12 and 14 did not generate new information either in those claims or in relation to dependent claims 2-11, 13 and 15. This amendment was therefore allowable under Article 123(2) EPC. Concerning sufficiency of disclosure, the fact that the concentrations of alkali methyl hydroxide and methyl chloride used in comparative example F of the patent in suit were in accordance with the corresponding lowest concentrations taught in paragraphs [0029] and [0034] of the specification, but nevertheless led to a DS-value below the minimum required by claim 1 of the main request, could not cast serious doubt on the reproducibility of the invention. The claimed invention did not concern the production process as such and the specification contained ample instructions allowing the skilled person to prepare the claimed cellulose ethers. The skilled person was aware based on the overall teaching of the patent in suit, in particular its examples 1 to 3 which would be compared with

comparative example F, but also taking into account basic chemistry knowledge that the concentrations of alkali methyl hydroxide and methyl chloride should be increased to obtain higher DS-values. The present invention was therefore enabled. As regard novelty, D1 did not disclose food compositions, even implicitly. D2 did not point towards the combination of features defined in the main request, as the only food compositions disclosed therein were indicated to be essentially not derivatised with hydroxyalkyl groups. Documents D9 and D10 which were meant to show that D2 was novelty destroying were late filed. Being not pertinent to the present case, as they did not concern a subject-matter disclosed in D2, those were not admitted into the proceedings. It was also decided that the subject-matter of the main request was entitled to the priority claimed, as said subject-matter was disclosed in the document from which priority was claimed and since D1a, the priority claimed for D1, an earlier application of the patent proprietor, could not be considered to describe the subject-matter of the main request. Concerning inventive step, the closest prior art was constituted by D3 from which the subject-matter of claim 1 differed by the concentration of the cellulose ether in the food composition and the s23/s26 ratio which contrary to the opponent's opinion was not implicitly disclosed in D3. As shown by the experimental results described in the patent in suit the problem successfully solved by the claimed invention was the provision of hydroxyalkyl methyl cellulose ethers conferring improved hardness and/or cohesion to food. Since there was no indication in the prior art towards the solution claimed based on the selection of the s23/s26 ratio, an inventive step was acknowledged.

VI. The opponent (appellant) lodged an appeal against the above decision. The following documents were submitted by the appellant with its statement setting out the grounds of appeal dated 28 November 2017:

D12: WO 2015/047762 A1

D13: Calculation of Addition Rate of Alkali Metal Hydroxide in the Second Stage in D3.

VII. The patent proprietor (respondent) submitted with the reply to the statement of grounds of appeal dated 11 April 2018 auxiliary requests 3 to 6 whose wording is not relevant for the present decision.

VIII. A communication of the Board dated 9 April 2020 sent in preparation for oral proceedings was issued.

IX. Oral proceedings before the Board took place on 19 May 2020.

X. The appellant's submissions, in so far as they are pertinent, may be derived from the reasons for the decision below. They are essentially as follows:

(a) Documents D9, D10, D12 and D13 should be admitted into the proceedings.

(b) Claims 2 to 11, 13 and 15 of the main request extended beyond the content of the application as filed.

(c) The subject-matter of claim 1 of the main request and for the same reasons that of its claims 2 to 15 lacked sufficiency of disclosure.



(d) Claims 1 to 15 lacked novelty over the disclosure of each of D1 and D2.

(e) The subject-matter of claims 1 to 15 lacked an inventive step in view of D3 as the closest prior art in combination with common general knowledge or D2.

XI. The respondent's submissions, in so far as they are pertinent, may be derived from the reasons for the decision below. They are essentially as follows:

(a) Documents D9, D10, D12 and D13 should not be admitted into the proceedings.

(b) Claims 2 to 11, 13 and 15 of the main request complied with the requirements of Article 123(2) EPC.

(c) The subject-matter defined in the main request met the requirements of sufficiency of disclosure and novelty.

(d) The subject-matter defined in the main request involved an inventive step over D3 taken as the closest prior art.

XII. The appellant requested that the decision under appeal be set aside and the patent be revoked.

XIII. The respondent requested that the appeal be dismissed (main request), or alternatively that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of auxiliary requests 1 and 2 submitted with letter of 26 May 2017

or auxiliary requests 3 to 6 submitted with letter of 11 April 2018.

## **Reasons for the Decision**

### *Admittance of D12, D13, D9 and D10*

1. D12 and D13 are new items of evidence filed by the appellant with their statement of grounds of appeal. Their admission to the proceedings, which was contested by the respondent, is subject to the discretionary power of the Board in accordance with Article 12(4) RPBA 2007 which applies in view of the transitional provisions in Article 25(2) RPBA 2020.
  - 1.1 According to the first part of the sentence of Article 12(4) RPBA 2007, everything filed with the statement of grounds of appeal or the reply is part of the appeal proceedings, except for facts, evidence and requests which could have been presented or were not admitted in the first-instance proceedings. The second part of the sentence of Article 12(4) RPBA 2007, provides an additional criterion, according to which everything (filed with the statement of grounds) shall be taken into account if and to the extent it relates to the case under appeal.
  - 1.2 As regards D12 it is noted, that the appellant did not provide any justification for the filing of this document at the appeal stage, i.e. with the statement of grounds of appeal. Thus, already the absence of any justification for submitting this document at this stage of the procedure is sufficient for holding it inadmissible. Furthermore, D12 is indicated by the

appellant to be a postpublished document, which was filed for the purpose of novelty and/or inventive step and served as evidence that Methocel E5 and Methocel ECM are cellulose ethers corresponding to those defined in claim 1 of the main request (cf. statement of grounds of appeal, page 4, second and third paragraph). Neither the contested decision, nor the appellant's submissions otherwise refer to Methocel E5 or Methocel ECM. Furthermore, the statement of grounds does not contain any substantiated novelty or inventive step objection based on D12 or involving D12. Accordingly, in the absence of any passage in the statement of grounds of appeal using D12 or those specific cellulose ethers for any novelty or inventive step objection D12 has not been shown to relate to the case under appeal and must be held inadmissible also for this reason (Article 12(4) RPBA 2007). For the sake of completeness its is noted that also the appellant's further submissions do not contain any substantiated objection involving D12.

- 1.3 D13 is a document presenting calculations of the addition rate of sodium hydroxide during the hydroxypropoxylation step carried out in Examples 1A to 3B of D3. It aims at showing that the addition rate of sodium hydroxide employed in D3 is similar to that taught in the patent in suit. The submissions of D13 constitutes a direct response to the argument of the opposition division in point 7.2.2 of the Reasons for the contested decision according to which the opponent's view that the preparation of the compositions of D3 was the same or analogous to the process disclosed in the patent in suit was not convincing, since for example it was important according to the teaching of the patent in suit to add the alkali metal hydroxide at a specifically slow rate.

Hence, the Board has no reason to make use of its discretionary power under Article 12(4) RPBA 2007 and disregard D13.

2. D9 and D10 are documents which do not form part of the state of the art and which were submitted by the opponent before the opposition division as evidence that the disclosure of D2 anticipated the subject-matter of claim 1 of the main request. These documents, however, were not admitted in the first instance proceedings as they were found to lack pertinence in the sense that the experimental evidence presented with these documents did not concern a reproduction of a cellulose ether disclosed in D2. The admission of D9 and D10 to the proceedings is therefore also left to the discretion of the Board in accordance with Article 12(4) RPBA 2007 which applies in view of the transitional provisions in Article 25(2) RPBA 2020.
  - 2.1 According to the established case law, in particular decision G 7/93 (OJ EPO 1994, 775), point 2.6 of the reasons, Boards of Appeal should only overturn discretionary decisions of the first instance if it is concluded that the first instance exercised its discretion according to the wrong principles, or without taking into account the right principles or in an unreasonable way.
  - 2.2 The experimental evidence addressed in D9 and D10 concerns a particular hydroxypropyl-methylcellulose having a DS(methyl) of 1.92 and a MS(hydroxypropyl) of 0.25 which was indicated by the appellant to have been produced on the whole description of D2, including its examples. The Board's preliminary view expressed in point 16.4 of the communication sent in preparation for oral proceedings that D2 had not been shown to disclose

this particular cellulose ether, let alone in the context of food compositions, was not contested by the appellant. Accordingly, in the absence of any indication by the appellant for a disclosure in D2 of the specific cellulose ether addressed in D9 and D10, the Board has no reason to consider that the first instance did not correctly exercise its discretion in not admitting D9 and D10 into the proceedings as lacking relevance to the question of novelty over D2. D9 and D10 are therefore held inadmissible under Article 12(4) RPBA 2007.

*Article 123(2) EPC*

3. The appellant does not dispute that the insertion into claims 1, 12 and 14 of the granted patent, corresponding to claims 1, 12 and 14 as filed, of the information that the cellulose ether is present in an amount of from 0.05 to 10 percent, based on the weight of the food composition, is in keeping with the requirements of Article 123(2) EPC. The parties agree that this additional information finds a basis on page 10, lines 21-23 of the application as filed. The appellant does not dispute either that the wording of subclaims 2 to 11, 13 and 15 which are dependent on claims 1, 12 and 14 respectively, is identical to that of the corresponding claims as filed. The appellant is nevertheless of the opinion that the insertion of this additional feature would generate new technical information as far as these dependent claims are concerned, on the basis of which the appellant concludes that the "gold standard" for assessing compliance with Article 123(2) EPC (G 2/10, OJ 2012, 376, points 4.3 and 4.5.1 of the Reasons and Case Law of the Boards of Appeal of the EPO, 9<sup>th</sup> Edition, 2019, II.E.1) is not met in respect of the dependent claims.

- 3.1 In accordance with this "gold standard" the relevant question to be decided in assessing whether the subject-matter of present claims 2 to 11, 13 and 15 extends beyond the content of the application as filed, is whether the skilled person would derive directly and unambiguously, using common general knowledge from the application as filed that the indication to use the cellulose ether in an amount of from 0.05 to 10 percent, based on the weight of the food composition, also applies in the context of the dependent claims as filed.
- 3.2 The passage on page 10, lines 21-23 reads "*Cellulose ethers are typically incorporated in food compositions at levels of 0.05 to 10 percent, preferably from 0.1 to 8 percent, more preferably from 0.2 to 5 percent, and most preferably from 0.5 to 2 percent, based upon the total weight of the food composition.*" Taken in isolation this passage could be understood as argued by the appellant to refer to cellulose ethers in general, but not necessarily to the cellulose ethers defined in the claims of the opposed patent. Leaving aside the fact that the appellant's argument is in contradiction with the appellant's opinion that this passage is nevertheless to be read by the skilled person to concern the subject-matter defined in independent claims 1, 12 and 14 of the application as filed, it is however to be stressed that the passage concerned is embedded in a description of various aspects relating to the present invention, namely the process for preparing the cellulose ether described in the preceding passage and the type of food in which it can be incorporated in the next following passage, in line with the definition in each independent claims 1, 12

and 14 that the cellulose ether is used in food compositions.

Moreover, there is no reason to believe that this information has not a general character. It therefore concerns not only the the broadest aspect of claimed invention, namely the food composition of claim 1, but also the other subject-matters disclosed in the application as filed whose definition is based on the food composition of claim 1, unless that additional information should be considered to be incompatible with the information content provided by these other subject-matters, in which case the resulting combination of features could not be made within the limits of what a skilled person would derive directly and unambiguously from the whole of the documents as filed. In the present case, the additional information inserted in claim 1 as filed does not lack compatibility with that provided in subclaims 2 to 11, 13 and 15 of the application as filed, meaning that the subject-matter of subclaims 2 to 11, 13 and 15 of the main request is also considered to be derivable directly and unambiguously from the whole of the documents as filed.

Consequently, the objection under Article 123(2) EPC raised by the appellant fails to convince.

#### *Sufficiency of disclosure*

4. According to the established jurisprudence of the Boards of Appeal of the EPO a European patent complies with the requirements of sufficiency of disclosure, if a skilled person, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge, is able to carry out

the invention as claimed in its whole extent without undue burden, i.e. with reasonable effort. The appellant objects that the present invention cannot be reproduced over the entire scope of the claims and therefore lacks sufficiency of disclosure based on two separate lines of arguments.

- 4.1 It is first alleged by the appellant that the skilled person is unable to obtain for comparative example F of the patent in suit a DS value of at least 1.65 as defined in operative claim 1, although the amounts of sodium hydroxide and methyl chloride used in each of the two alkalisation steps and two methylation steps performed in comparative example F correspond to those recommended in paragraphs [0029] to [0034] of the specification. This, in the appellant's view, would constitute verifiable facts casting serious doubts on the sufficiency of disclosure of the present invention.

As indicated by the opposition division a method comprising the very specific process measures described with comparative example F is not claimed, let alone indicated in the specification to lead to a cellulose ether fulfilling the parametric requirement of a DS(methyl) of from 1.65 to 2.20 as defined in operative claim 1. The DS(methyl), i.e. the degree of the methyl substitution, of a cellulose ether is the average number of OH groups substituted with methyl groups per anhydroglucose unit (cf. paragraph [0018] of the patent in suit). The methylation of OH groups is the result of an alkalisation step reaction of the anhydroglucose units using an alkali metal hydroxide and of a methylation reaction of the alkalized anhydroglucose units using a methylating agent such as methyl chloride or dimethyl sulfate (cf. paragraphs [0029] and [0030] of the specification), which obviously means for the



skilled person, as is also implicit from the recommended amounts for these reactants in paragraphs [0029] to [0034] of the specification, that the success of the methylation reaction depends on the used amounts of both alkali metal hydroxide and methylating agent.

While the amounts of alkali hydroxide and methylating agent used in each of the steps of the reaction in comparative example F are, as noted by the appellant, within the amounts recommended in paragraphs [0029] and [0032] to [0034] of the patent in suit, the patent in suit does not indicate that those amounts necessarily result in a DS of from 1.65 to 2.20 as defined in operative claim 1. The above mentioned paragraphs merely indicate that those amounts are typically or generally used. The Board therefore agrees with the opposition division that the skilled person wishing to increase the DS value of 1.44 obtained in comparative example F to the minimum value of 1.65 required by operative claim 1 would of course increase the proportion of reactants needed for the methylation reaction, i.e. increase the amount of both alkali metal hydroxide and methylating agent used per anhydroglucose unit within the limits recommended in paragraphs [0029] and [0032] to [0034] of the patent in suit. The appellant did not dispute that the skilled person by doing so would obtain a cellulose ether meeting all requirements of claim 1, in particular a DS(methyl) value within the range of 1.65 to 2.20. In absence of any evidence to the contrary or further arguments in this respect the Board does not see any reason to depart from the opposition division's finding according to which example comparative F does not cast doubt on sufficiency of disclosure of the present invention.

4.2 As a second line of attack, the appellant submitted in the statement of grounds of appeal (page 10, third paragraph) that the examples of the patent in suit concern only cellulose ethers having a DS (methyl) values of from 1.81 to 1.83, an MS of from 0.15 to 0.28 and an [s23/s26 - 0.2 MS(hydroxyalkyl)] of from 0.16 to 0.19, but that no examples are provided for obtaining cellulose ether with a DS (methyl) and [s23/s26 - 0.2 MS(hydroxyalkyl)] value close to the lower or upper limit of claim 1 and an MS(hydroxyalkyl) closer to the upper limit.

The appellant's submissions do not go beyond the mere constatation that the examples of the patent in suit do not cover the full breadth of operative claim 1 or that according to paragraphs [0029] to [0034] the measures to be carried out for preparing the cellulose ethers can be varied (statement of grounds of appeal, page 10, fourth paragraph). The appellant did not address the significance of these measures, did not specifically address the teaching provided in the patent in suit or why the skilled person based on his/her common general knowledge would not be able to vary without undue burden the parameters MS and [s23/s26 - 0.2 MS(hydroxyalkyl)]. In addition, the argument that the only examples provided in the specification use the highest concentration of alkali methyl hydroxide and methyl chloride in the first step and almost the highest concentration in the second step as described in paragraphs [0029] to [0040] must be considered taking into the whole information content of those paragraphs according to which the amounts indicated are generally or typically used, as already indicated in above point 4.1, which does not rule out the use of lower or higher amounts as the need arises.

Most importantly, the appellant's objection concerns the ability of the skilled person to prepare a specific group of compounds within the broader group of compounds defined in claim 1, i.e. cellulose ethers with a DS (methyl) and [s23/s26 - 0.2 MS(hydroxyalkyl)] value close to the lower or upper limit of claim 1 and an MS(hydroxyalkyl) closer to the upper limit, whereas neither the claims nor the description of the patent in suit discloses that that restricted group of cellulose ether with a very specific combination of lower and upper limits of the values of the parameters corresponds to a particular aspect of the present invention. In other words, the particular group of cellulose ethers addressed by the appellant corresponds at most to an undisclosed potential invention within the broader invention defined in the patent in suit, i.e. a potential selection invention within the invention presently claimed which is not disclosed in the patent in suit.

Therefore the appellant's second line of attack which only concerns unsubstantiated doubts about an invention which differs from that presently claimed cannot lead to the conclusion that the subject-matter defined in the present claims lacks sufficiency of disclosure either.

- 4.3 Accordingly, no case has been made that the invention defined by the terms of the present claims lacks sufficiency of disclosure.

*Novelty over D1*

5. The various passages of D1 cited by the appellant in order to show that this document anticipates the food composition defined in claim 1 of the main request are:

- dependent claim 5 which by reference to claim 1 defines a cellulose ether whose definition corresponds to that provided in operative claim 1, in which the DS (methyl) is from 1.2 to 2.2 and the MS (hydroxyalkyl) is from 0.05 to 1.00,
- page 14, lines 16-19 disclosing an aqueous composition for the manufacture of capsules or coatings of dosage forms which comprises from 7 to 40 wt%, preferably from 10 to 30 wt% of the cellulose ether, based on the total weight of the composition,
- page 14, line 28 which describes that the composition may comprise sorbitol as a plasticizer, sorbitol being as argued by the appellant an edible ingredient.

5.1 The above mentioned passage on page 14 of D1 which describes an amount of cellulose ether overlapping with that defined in operative claim 1 discloses only an aqueous composition for the manufacture of capsules or coatings of dosage forms. It does not however refer to a food composition, even implicitly as no further details about said aqueous composition are provided. In the Board's opinion the term food composition implies that the composition must not only comprise a compound which can be held to be a nutriment, but must also be considered to be edible. The mere fact that the composition may contain sorbitol as disclosed on page 14, line 27 of D1, which is an edible compound, however does not imply that said composition comprising sorbitol is edible, since no further information about the presence of further components is given, e.g. whether or not it contains additional components which would render the composition not edible. The same conclusion would also be arrived at, if one adopted the appellant's broad definition of a food composition, i.e. a composition that can be used for preparing a

food composition, as D1 does not disclose whether the composition containing sorbitol are free of components which would make them unsuitable for preparing food compositions.

- 5.2 Moreover, the objection raised by the appellant implies that the skilled reader of D1 would find in that document the unmistakable information to use sorbitol in combination with an amount of cellulose ether in the lower range defined on page 14, lines 16-19, i.e. in amount of at most 10 wt.-%. D1, however, does not contain such information, even in an implicit manner. In accordance with the case law of the Boards of Appeal the term "implicit disclosure" refers to a disclosure which any person skilled in the art would objectively consider as necessarily implied by the explicit content, i.e. the direct and unambiguous consequence of what is explicitly mentioned (Case Law, supra, I.C.4.3). The appellant however did not refer to any pointer in that document, i.e. one or more passages thereof inciting the skilled person, for example by way of preferences expressed or references to other passages, to inevitably read some of the passages cited by the appellant in combination, resulting in a food composition falling within the ambit of claim 1 as granted.

In addition, as outlined by the respondent, if the composition used for the manufacture of capsules or coatings of dosage forms is used to prepare nutrition supplements as disclosed on page 15, line 4, the amount of cellulose ether in the nutrition supplements obtained is unknown, as it will depend on the proportion of the components other than the capsule or the coating which is not disclosed in D1.

5.3 In view of the general principle consistently applied by the Boards of Appeal for concluding lack of novelty that there must be a direct and unambiguous disclosure in the state of the art which inevitably leads the skilled person to subject-matter falling within the scope of what is claimed, it is concluded in view of the above that claim 1 has not been shown to lack novelty over D1. As a consequence, the subject-matter of any of claims 2 to 15 which is defined to comprise all the features of present claim 1 is also novel over D1.

*Novelty over D2*

6. The objection of the appellant relies on the disclosure provided by claim 34 of D2 which refers to claim 32, itself referring to claim 20. The Board agrees that claim 34 thereby defines a food composition comprising 0.01 to 5 wt% of a methylcellulose having a methoxy substitution of 29 to 32 wt% based on the weight of the methylcellulose, the definition of the food composition being furthermore restricted by the definition that the methylcellulose has the gel strength defined in claim 20.

The objection is furthermore based on the appellant's view that the information content of claim 34 of D2 should be read in the light of the passage on page 4, lines 8-13 of that document which the appellant understands to describe that the methylcelluloses of D2 preferred for use in food compositions may comprise up to 5 wt% of hydroxylpropyl substitution (based on the weight of the methylcellulose).

6.1 The passage on page 4, lines 11 to 15 states that "*methylcelluloses preferred for use in food compositions*

*will have a non-methoxyl substitution content or level of about 5 percent or less, more preferably about 1 percent or less, and even more preferably about 0.2 percent or less. Methylcelluloses most preferred for use in food compositions will be substantially free of non-methoxyl substitution content".* This passage does not necessarily mean that any type of methylcellulose which can be produced according to the invention of D2, in particular those listed in lines 6 to 8 of the same page which include hydroxypropylmethylcelluloses among other groups of methylcelluloses such as hydroxyethylmethylcellulose, hydroxybutylmethylcellulose and methylethylcellulose, is to be used in food compositions with a content of non-methoxyl substituents up to 5 %, regardless of the type of non-methoxyl substituent. Accordingly, the passage on page 4, lines 8 to 13 does not constitute a clear and an unmistakable teaching that hydroxypropylmethylcelluloses when used in food compositions may contain up to 5 % of hydroxypropyl substituents which constitutes the basis for the objection raised by the appellant (see estimation of MS in the last paragraph on page 13 of the statement of grounds of appeal).

- 6.2 Furthermore, no passage of D2 discloses the  $s_{23}/s_{26}$  ratio of the methyl cellulose compounds prepared in this document, let alone the ratio of those which can be used in food compositions. The appellant, however, argues based on D9 and D10 that the  $[s_{23}/s_{26} - 0.2 \text{ MS}(\text{hydroxyalkyl})]$  values defined in operative claim 1 are inherently disclosed in D2, which documents are however not in the proceedings (cf. points 2 to 2.2 supra).
- 6.3 Accordingly, D2 has not been shown to disclose cellulose ethers meeting the  $\text{MS}(\text{hydroxyalkyl})$  and  $[s_{23}/$

s26 - 0.2 MS(hydroxyalkyl)] requirements defined in operative claim 1, let alone in the context of food compositions. Claim 1 is therefore not anticipated by D2. The same holds true for the subject-matter of claims 2 to 15 which is defined to comprise all the features of present claim 1.

7. On that basis, the subject-matter of the main request meets the requirement of novelty (Article 54(2) EPC).

*Inventive step*

8. The appellant has submitted in section II.8.1 of the statement of grounds of appeal a first line of arguments merely based on the allegation that the problem of the invention ("*the provision of hydroxyalkylmethyl cellulose having improved hardness and/or cohesion to solid food compositions*") has not been shown to be solved over the whole breadth of the claims. This argumentation, however, does not follow the problem-solution approach consistently advocated by the Boards of Appeal, which approach facilitates an objective assessment of inventive step. More importantly, the analysis of inventive step made in said section of the statement of grounds of appeal is based solely on the question of whether some effects are achieved, but contrary to the requirements of Article 56 EPC is not made having regard to the state of the art. Therefore, the first line of arguments submitted by the appellant in respect of inventive step cannot be successful.

*D3 as closest prior art*

9. The second line of arguments in section II.8.2 of the statement of grounds of appeal is made starting from D3



as the closest prior art, in line with the Reasons for the contested decision and in agreement with the respondent, whose opinion in this respect has not varied. The disclosure within the teaching of D3 constituting the starting point for analysing inventive step was indifferently considered by both parties to be represented by any of the cellulose ethers obtained in Examples 1B, 2B and 3B of that document. The Board has no reason to take a different position.

9.1 The parties agree that cellulose ethers are not disclosed in D3 to be present in a food composition in an amount of 0.05 to 10% based on the weight of the food composition. There is also consensus that the cellulose ethers obtained in Examples 1B, 2B and 3B of D3 meet the requirements of operative claim 1 as far as the DS(methyl) and MS(hydroxyalkyl) values are concerned. The cellulose ethers prepared in Examples 1B and 2B have both a DS(methyl) of 1.81 and a MS(hydroxyalkyl) of 0.14, the sole hydroxyalkyl being hydroxypropyl. The cellulose ether of Example 3B has a DS(methyl) of 1.79 and a MS(hydroxyalkyl) of 0.12, the sole hydroxyalkyl being also hydroxypropyl.

9.2 The parties are however in dispute whether these cellulose ethers constitutive of the closest prior art exhibit a [s23/s26 - 0.2 MS(hydroxyalkyl)] value in accordance with operative claim 1. The appellant argues based on similarities of the processes used in the closest prior art and in the patent in suit for preparing the cellulose ethers that the cellulose ethers prepared in the closest prior art also exhibit a [s23/s26 - 0.2 MS(hydroxyalkyl)] value within the range defined in operative claim 1. The appellants refers more specifically to the use of the same starting materials under the same conditions, the amounts of

alkali metal hydroxide and alkyl halogenide per anhydroglucose being similar and the addition rate of sodium hydroxide in the second step of the reaction being held by the appellant to be the same as recommended on page 5, lines 45-47 (i.e. paragraph [0034]) of the patent in suit based on the calculations in D13.

9.3 The Board cannot concur with the conclusion of the appellant.

Firstly, the addition rate of sodium hydroxide for the hydroxypropoxylation step carried out in Examples 1B, 2B or 3B of D3 is based on the assumption that the alkalization times described for this step equates with the addition time of sodium hydroxide, which is not necessarily the case since D3 does not specify whether the alkalization times indicated therein comprises only the time of addition of the sodium hydroxide, the additional time after said addition or possibly both. Moreover, there is no indication in the experimental part of D3 that the sodium hydroxide was continuously added for the hydroxypropoxylation step, which also is an assumption underlying the calculations made by the appellant in D13. Therefore the rate of addition of the alkali metal hydroxide in D3 cannot be unambiguously determined to be that recommended in the patent in suit.

Secondly, no evidence has been submitted, nor is provided by the patent in suit that for a second alkalization step such as described in the patent in suit, an addition of the alkali metal hydroxide at the rate recommended in paragraph [0034] of the patent in suit, regardless of the other process measures used for the preparation of the cellulose ether, would

necessarily lead to a [s23/s26 - 0.2 MS(hydroxyalkyl)] value within the range defined in operative claim 1. Having regard to these other process measures, the preparation of the cellulose ethers in Examples 1B, 2B or 3B of D3 although being as in the patent in suit made in two stages cannot be held to be similar to that used in the examples of the patent in suit. In particular the hydroxypropoxylation reaction is carried out in the examples of D3 only during the second stage of the reaction, consecutively to the methylation reaction which takes place exclusively in the first stage. In contrast thereof hydroxypropoxylation is carried out in the examples of the patent in suit solely during the first stage of the reaction simultaneously to the reaction of a part of the methoxylating agent, followed by a second stage for an additional methylation step (paragraphs [0045] and [0046]) in accordance with the general teaching provided in paragraph [0036] of the specification.

The Board agrees with the respondent that the order of addition of the hydroxyalkylating agent is expected to have an influence on the molar fraction of anhydroglucose units wherein only the two hydroxy groups in the 2- and 3-positions or only the two hydroxy groups in the 2- and 6-positions of the anhydroglucose unit are substituted with methyl groups.

In view of the above it cannot be concluded, even taking D13 into account, that the examples of D3 inherently disclose cellulose ethers having such [s23/s26 - 0.2 MS(hydroxyalkyl)] values within the range defined in operative claim 1.

9.4 Accordingly, in agreement with the opposition division's view, the subject-matter of operative

claim 1 does not only differ from the closest prior art in that the cellulose ether is present in a food composition in an amount of 0.05 to 10% based on the weight of the food composition, but also in that the cellulose ethers have a [s23/s26 - 0.2 MS(hydroxyalkyl)] value of at most 0.35.

*Problem successfully solved*

10. Having regard to the disclosure of the closest prior art, the respondent and the appellant were divided as to which problem could be considered to be successfully solved by the subject-matter of operative claim 1. Relying on the experimental results described in Table 3 of the patent in suit, the respondent argued that the technical problem solved by the subject-matter of claim 1 over the closest prior art was the provision of a food composition that exhibits improved hardness and cohesion values, whereas the appellant submitting that the properties obtained for both the examples and comparative examples were similar argued that the problem solved by the claimed subject-matter was to provide an alternative food composition.

The Board agrees with the finding of the opposition division in point 7.3 of the reasons for the contested decision that the selection of a [s23/s26 - 0.2 MS(hydroxyalkyl)] value of at most 0.35 brings about higher hardness and cohesion, at least for the refrigerated products exemplified in the patent in suit. This is shown in Table 3 of the patent in suit in so far as a comparison of the cellulose ether of Comparative Example C with those of Examples 1 and 2 or a comparison of the cellulose ether of Comparative Example D with those of Examples 2 and 3 is concerned.

The question whether higher hardness and cohesion is also obtained at 20°C as alleged by the respondent or whether the problem of providing improved hardness and cohesion values is successfully solved over the whole scope of operative claim 1, i.e. over the whole ranges of DS(methyl) and MS(hydroxyalkyle) values defined in present claim 1 has however no bearing on the outcome of the present decision as shown below. Accordingly, the question whether the technical problem successfully solved by the subject-matter of claim 1 over the closest prior art is the provision of a food composition that exhibits improved hardness and cohesion values or in the alternative has to be reformulated as the provision of further food compositions can be left unanswered.

*Obviousness*

11. It remains to be decided whether or not the solution to one of the above mentioned problems, which solution involves the use of a cellulose ether having the parametric definition given in operative claim 1, was obvious to the skilled person in view of the state of the art.

11.1 As pointed out by the appellant, none of the cited prior art reference has been shown to disclose a cellulose ether meeting the requirement that the [s23/s26 - 0.2 MS(hydroxyalkyl)] value should be at most 0.35, let alone in the context of food composition. The sole document mentioning this parametric requirement is D1, which however was published between the priority date and filing date of the patent in suit and is not prior art pursuant to Article 54(2) EPC, since the subject-matter of the main

request is entitled to the priority claimed, as correctly decided by the opposition division.

In this respect the appellant did not contest that the subject-matter claimed was disclosed in the application from which priority is claimed, but argued that an earlier application D1a of the same patent proprietor, i.e. the application from which priority is claimed in D1, would already disclose the subject-matter of the present main request, depriving the subject-matter of the main request from the right of priority claimed (Articles 87(1) and (4) EPC). However, the respondent's argument that the content of D1a is identical to that of D1 (response to the statement of grounds of appeal, page 6, fifth paragraph) was not contested by the appellant, which means in view of the assessment of novelty over D1 provided in above points 5 to 5.3 that D1a does not disclose the subject-matter of the present main request. Accordingly, D1a cannot deprive the subject-matter of the present claims from the priority claimed meaning that D1 is not prior art pursuant to Article 54(2) EPC and cannot be taken into account for assessing inventive step.

11.2 Moreover, no indication has been provided as to why preparing a cellulose ether meeting all requirements defined in the present claims, in particular a [s23/s26 - 0.2 MS(hydroxyalkyl)] value of at most 0.35 would be obvious to the skilled person.

11.3 Accordingly, regardless of the problem which can be considered to have been successfully solved by the subject-matter of the present claims over the closest prior art, the submissions of the appellant which do not show that it would have been obvious for the skilled person to modify the teaching of D3 in using

cellulose ethers which have a [s23/s26 - 0.2 MS(hydroxyalkyl)] value of at most 0.35 cannot lead to the conclusion that the subject-matter of the present claims was obvious to the skilled person.

11.4 Consequently, the subject-matter of the main request involves an inventive step within the meaning of Article 56 EPC.

## Order

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:



B. ter Heijden

D. Semino

Decision electronically authenticated