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**Datasheet for the decision  
of 11 January 2023**

**Case Number:** T 0130/19 - 3.3.03

**Application Number:** 12805420.2

**Publication Number:** 2726561

**IPC:** C09D5/16, C09D183/12

**Language of the proceedings:** EN

**Title of invention:**  
FOULING CONTROL COATING COMPOSITIONS

**Patent Proprietor:**  
Hempel A/S

**Opponent:**  
Jotun A/S

**Relevant legal provisions:**  
EPC R. 139  
RPBA 2020 Art. 13(2), 11  
EPC Art. 100(b), 111(1)

**Keyword:**  
Correction of error - form for payment of appeal fee (yes)  
Amendment after summons - exceptional circumstances (yes)  
Sufficiency of disclosure - (yes)  
Remittal to the department of first instance - (yes)

**Decisions cited:**

G 0001/12, G 0003/14, T 2422/18, T 0317/19, T 1060/19,  
T 3098/19, T 0444/20, T 0637/21



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Case Number: T 0130/19 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 11 January 2023**

**Appellant:** Hempel A/S  
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**Respondent:** Jotun A/S  
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**Representative:** Dehns  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 5 November 2018  
revoking European patent No. 2726561 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman** D. Semino  
**Members:** F. Rousseau  
R. Cramer

## **Summary of Facts and Submissions**

I. The appeal by the patent proprietor lies from the decision of the opposition division posted on 5 November 2018 according to which European patent No. 2 726 561 was revoked. The decision was based on a main request and auxiliary requests 1 to 23, all filed with letter of 5 July 2018.

II. Claims 1, 9, 10 and 14 of the main request read as follows:

"1. A cured paint coat comprising a polysiloxane-based binder matrix and one or more biocides, said binder matrix having included as a part thereof hydrophilic oligomer/polymer moieties, wherein the weight ratio between the hydrophilic oligomer/polymer moieties and the one or more biocides is in the range 1:0.02 to 1:20, and wherein more than 50 % by weight of the binder matrix is represented by polysiloxane parts.

9. A fouling control coating composition comprising a polysiloxane-based binder system, said binder system comprising one or more reactive polysiloxane components modified with hydrophilic oligomer/polymer moieties, and one or more biocides, wherein the weight ratio between the hydrophilic oligomer/polymer moieties and the one or more biocides is in the range 1:0.02 to 1:20, and wherein more than 50 % by weight of the binder system is represented by polysiloxane parts.

10. A fouling control coating composition comprising a polysiloxane-based binder system, said binder system comprising one or more hydrophilic oligomer/polymer

moieties which at one or both ends carry  $-\text{Si}(\text{R}^*)_3$  groups, wherein each  $\text{R}^*$  independently is selected from  $\text{C}_{1-4}$ -alkyl and  $\text{C}_{1-4}$ -alkoxy, at least one being  $\text{C}_{1-4}$ -alkoxy, and one or more biocides, wherein the weight ratio between the hydrophilic oligomer/polymer moieties and the one or more biocides is in the range 1:0.02 to 1:20, and wherein more than 50 % by weight of the binder system is represented by polysiloxane parts.

14. Use of the combination of one or more reactive polysiloxane components modified with hydrophilic oligomer/polymer moieties and one or more biocides, wherein the weight ratio between the hydrophilic oligomer/polymer moieties and the one or more biocides is in the range 1:0.02 to 1:20, for improving the antifouling properties of a polysiloxane based coating composition."

III. The decision was taken having regard to document D14 filed during the oral proceedings. This document consists of pages 19 to 30 of the specification of the patent in suit with additional hand-written annotations concerning the content of PEG in the binders described in the examples and the corresponding weight ratio between hydrophilic oligomer/polymer moieties and biocide.

IV. According to the reasons for the contested decision which are pertinent for the appeal proceedings:

(a) As document D14 was prima facie relevant and its admittance was not contested, it was admitted into the proceedings.

(b) The term "hydrophilic" was clear to the skilled person in the context of the patent in suit. The

fact that the claims were broad was not an issue of sufficiency, but rather of clarity which was not a ground for opposition, and would be relevant for inventive step, should it be considered that the claims were too broad to acknowledge the existence of a technical effect over their whole breadth.

(c) The crucial issue in relation to sufficiency of disclosure, however, was that there was no method for measuring the amount of hydrophilic moieties in the polysiloxane binder, which made it impossible to determine the weight ratio of the hydrophilic moieties and the biocide. The patent contained only calculations made for the examples, which, as conceded by the patent proprietor, were not correct for examples HMP1, HMP3 and HMP5. The recalculation shown in D14 was based on assumptions concerning the reactivity of the reactants, which information was not present in the patent in suit, nor was part of the common general knowledge. It was therefore concluded that the skilled person could not prepare the hydrophilic modified polysiloxane binder of claim 1. This equally applied to independent claims 9, 10 and 14 which also included the binder of claim 1. The main request was therefore refused.

(d) The same applied to all auxiliary requests, since the amendments did not affect the determination of the content of hydrophilic groups.

V. A notice of appeal was filed online by the patent proprietor (appellant) with letter of 14 January 2019 which was accompanied by a filled out Form 1038E ("Letter accompanying subsequently filed items") which form indicated the description of the document (Notice of appeal), the fees ("011 Appeal fee for an appeal

filed by an entity other than those referred to in Rule 6(4) and (5) EPC"), the amount to be paid ("EUR 2 255.00") and the method of payment ("Not specified").

VI. The appellant was informed by a telephone call from the registrar on 7 February 2019 that the payment method had not been specified. On the same day the appellant submitted a request for correction of Form 1038E pursuant to Rule 139 EPC in which the indication "not specified" in the box defining the mode of payment of the appeal fee, was corrected with hand written characters to read as follows:

"Debit from deposit account

Currency: EUR

The European Patent Office is hereby authorised, to debit from the deposit account with the EPO any fees and costs indicated on the fees page.

Deposit account number: 28030086

Account holder: Inspicos P/S".

VII. The statement setting out the grounds of appeal was submitted with letter of 15 March 2019 to which the following documents were attached:

D24: Experimental report entitled NMR analyses

D25: Declaration from Prof. S. Hvilsted dated 14 March 2019.

VIII. With letter of 5 April 2019 the appellant submitted as a precautionary measure a request for re-establishment of rights under Article 122 EPC in respect of the appeal. The corresponding fee was paid. The appellant's request for re-establishment referred to Annexes A to E

and attachments 1 to 6 which were all attached to the letter of 5 April 2019.

- IX. The response of the opponent (respondent) to the statement of grounds of appeal was submitted with letter of 18 July 2019.
- X. Additional submissions were made by the respondent with letter of 15 November 2022.
- XI. In additional written submissions dated 5 December 2022 the appellant referred to the following document:
- D26: WO 2021/105429 A1.
- XII. Oral proceedings before the Board were held on 11 January 2023.
- XIII. The appellant requested the correction under Rule 139, first sentence, EPC of the erroneous indication "not specified" in the "Method of payment" box on Form 1038 filed on 14 January 2019 and that it be acknowledged that the fee for appeal has been timely paid. In the alternative the appellant requested re-establishment of rights under Article 122(1) EPC in the period for the payment of the appeal fee under Article 108, second sentence, EPC.

The appellant also requested that document D26 be admitted into the proceedings and that their letter of 5 April 2019 with its annexes be excluded from file inspection.

The appellant further requested that the decision of the opposition division be set aside and the case be remitted to the opposition division for further



prosecution on the basis of the claims of the main request or in the alternative on the basis of the claims of one of auxiliary requests 1 to 23 submitted before the opposition division with letter of 5 July 2018 and re-submitted with the statement of grounds of appeal, after acknowledgement that one of these requests meets the requirement of sufficiency of disclosure.

XIV. The respondent requested that the appeal be deemed not to have been filed or that it be dismissed.

The respondent further requested that document D26 not be admitted into the proceedings.

The respondent also requested that the case be remitted for further prosecution, should sufficiency of disclosure be acknowledged for any of the appellant's requests.

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

(a) The correction under Rule 139 EPC of Form 1038E submitted with the notice of appeal should be allowed. The appeal should be deemed to have been timely filed.

(b) As shown with D24 NMR spectroscopy was a suitable analysis tool for the skilled person to determine the content of hydrophilic oligomer/polymer moieties without undue burden. The invention as defined in independent claims 1, 9, 10 and 14 was therefore sufficiently disclosed.

XVI. The submissions of the respondent, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They are essentially as follows:

- (a) The correction under Rule 139 EPC of Form 1038E submitted with the notice of appeal should not be allowed. It was doubtful whether T 0317/19 which concerned an ex parte case would be applicable. In an inter parte case the principles of legal certainty would prevail. In application of G 1/18, the appeal should be deemed not to have been timely filed.
- (b) The method described in D24 which contained numerous inconsistencies, assumptions and unclarities did not enable the skilled person to reliably determine the content of hydrophilic oligomer/polymer moieties. The skilled person could not understand and carry out the NMR measurements and calculations presented in D24 without undue burden. The requirements of sufficiency of disclosure were therefore not met.

## **Reasons for the Decision**

### *Request for correction of Form 1038 under Rule 139 EPC*

1. The appellant filed a notice of appeal on 14 January 2019, i.e. within the two-month time limit prescribed in Article 108, first sentence, EPC, which ended on 15 January 2019 (Rules 126(2), 131(2) and (4) EPC). However, due to the erroneous indication "not

specified" in the "Method of payment" box on Form 1038E, the debit order for the payment of the appeal fee was not carried out before expiry of that time limit.

2. With letter of 7 February 2019 the appellant requested a correction under Rule 139, first sentence, EPC of Form 1038E submitted with the notice of appeal in the manner specified in above point VI.

It is undisputed that the requested correction fulfills the conditions set out in point 37 of the Reasons for decision G 1/12 (OJ EPO 2014, A114). The Board refers to decision T 0317/19 of 22 October 2019 which relies upon decision G 1/12 in which a correction under Rule 139, first sentence, EPC in a similar factual situation concerning an appeal in an ex parte case was allowed. It is in particular referred to the reasoning provided in points 1 to 3 of said decision in which the relevant legal provisions and case law are discussed. The Board fails to discern why the reasoning provided in T 0317/19 regarding the applicability of Rule 139 EPC to a correction of an erroneously filled out payment form in an ex parte case should not apply for an appeal in an inter partes case, since the ruling of G 1/12 upon which it is relied in T 0317/19 clearly applies to both ex parte and inter partes cases. In section 2.4.4 of the reasons of decision T 0317/19 the deciding board did not say that they would have decided otherwise if it were an inter partes case, but left that question open. It can be also referred to decision T 3098/19 of 14 October 2022 in which a correction of the amount of appeal fee pursuant to Rule 139 EPC was authorized in an inter partes case in application of decision G 1/12.

In the present case, the indication "011 Appeal fee for an appeal filed by an entity other than those referred to in Rule 6(4) and (5) EPC" in original Form 1038E shows that the intention of the patent proprietor was to pay the appeal fee at the same time as filing the notice of appeal. The request for correction was filed on the day that the appellant was informed by a telephone call from the registrar that the payment method had not been specified, i.e. without delay.

3. Referring to decisions T 0637/21 of 18 February 2022, T 2422/18 of 6 October 2020 and T 1060/19 of 11 February 2020 the respondent submitted that a simple error concerning the payment of the appeal fee was not always excused by the Boards. According to the respondent legal certainty as to whether appeal proceedings were pending should take precedence in inter parte proceedings. These decisions concern the underpayment of the appeal fee within the prescribed time limit as a consequence of having erroneously paid the reduced appeal fee. Although these decisions therefore are concerned with the question whether the appeal was deemed to have been filed, they do not relate to cases in which a correction under Rule 139 EPC of the erroneous indication concerning the payment of the appeal fee had been requested. These decisions are therefore not relevant for the present case. In case T 0444/20 of 22 January 2021 a request of correction under Rule 139 EPC was allowed in a case of such underpayment.
4. The Board concludes therefore that the request for correction of Form 1038E is to be allowed and that the appeal is therefore deemed to have been timely filed.

5. Under these circumstances, there is no need to decide on the request for re-establishment of rights under Article 122 EPC. The fee for re-establishment of rights is therefore to be reimbursed as the request is redundant (Case Law of the Boards of Appeal (CLB), 10th edition 2022, III.E.9.2).
6. Furthermore, the request that the letter of 5 April 2019 concerning re-establishment of rights and its attachments be excluded from file inspection, which request was not opposed by the respondent, is allowed as their inspection would not serve the purpose of informing the public about the European patent (Rule 144(d) EPC).

*Admittance of D26*

7. The admittance of D26 submitted by the appellant after issuance of the summons to oral proceedings is to be decided on the basis of Article 13(2) RPBA 2020 according to which any amendment to a party's case after notification of a summons to oral proceedings shall in principle not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned. In the exercise of its discretion under Article 13(2) RPBA 2020 the Board may also rely on the criteria set out in Article 13(1) RPBA (CLB, V.A.4.5.9).

As pointed out by the appellant, D26 is a patent application of the present respondent in which it is stated on page 18, lines 9-12 that the proportion of hydrophilic moieties (e.g. polyether groups) of certain non-ionic hydrophilic-modified polysiloxanes, whose structure shown on pages 19 and 20 is similar to those prepared in the patent in suit, can be determined using

analytical techniques such as IR or NMR. This document therefore addresses the issue raised by the respondent, i.e. the ability of the skilled person to determine the amount of hydrophilic polymer moieties in a similar polysiloxane by NMR spectroscopy. The fact that this document, which was known to the respondent, only became publicly available in June 2021, namely after all submissions by the appellant before the summons had already been filed, together with the fact that its teaching puts the respondent's submissions in perspective justifies in the Board's opinion the submission of D26 at a later stage of the proceedings and fulfils in particular the requirements of Article 13(1) RPBA 2020. The Board, therefore, identifies the presence of exceptional circumstances, and, exercising its discretion under Article 13(2) RPBA 2020, decided to admit D26 into the appeal proceedings.

*Article 100(b) EPC*

8. 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.

This means in the present case that the skilled person should be able to prepare a cured paint coat as defined in claim 1 which comprises (i) a polysiloxane-based binder matrix including as a part thereof hydrophilic oligomer/polymer moieties and (ii) one or more biocides.

9. As reflected in the parties' submissions and in line with paragraphs 35, 37, 38 and 39 of the specification the expression "including as a part thereof" in claim 1 means comprised in its polymeric structure, i.e. covalently incorporated therein.

Claim 1 requires a weight ratio between the hydrophilic oligomer/polymer moieties which are covalently incorporated in the polysiloxane-based binder matrix and the one or more biocides to be in the range 1:0.02 to 1:20.

10. Apart from the question of achieving a weight ratio between the hydrophilic oligomer/polymer moieties incorporated in the polysiloxane-based binder matrix and the one or more biocides which is in the range 1:0.02 to 1:20, it is undisputed that the composition as defined in claim 1 is sufficiently disclosed to be carried out by a skilled person.

In this respect it is undisputed that the patent in suit teaches how to prepare a cured coating comprising a polysiloxane-based binder matrix having covalently bonded hydrophilic oligomer/polymer moieties. The preparation of the polysiloxane-based binder which includes as a part thereof hydrophilic oligomer/polymer moieties is described in paragraphs 44 to 74 of the specification, as well as in its paragraphs 176 to 180 in which examples of such preparation are given.

The hydrophilic oligomer/polymer moieties can be attached as pendant moieties to the polysiloxane backbone (paragraphs 53 to 61). Examples of such pendant hydrophilic modified polysiloxanes are polymers HMP1, HMP3 and HMP5 whose synthesis is described in paragraphs 176, 178 and 180 of the specification.

As an alternative, the hydrophilic oligomer/polymer moieties can be attached between two polysiloxane blocks, i.e. as a block within the backbone of the polysiloxane-based binder (paragraph 62). Examples of such possibility are shown with exemplified polymers HMP2 and HMP4 described in paragraphs 177 and 179 of the specification.

Since the amount of biocide added can be selected without any difficulty, it is uncontested that the decisive issue in relation to sufficiency of disclosure is therefore whether the skilled person is able to determine the amount of hydrophilic oligomer/polymer moieties which has been covalently incorporated in the polysiloxane-based binder matrix.

11. In this regard, the appellant does not rely anymore on the ability of the skilled person to foresee this amount based on calculations involving the reactivity of the monomeric and oligomeric/polymeric reactants used to prepare the polysiloxane-based binder matrix. The appellant does not dispute that the calculations concerning the amount of PEG used as hydrophilic oligomer/polymer moieties in the examples of the patent in suit are incorrect, as was submitted by the respondent and agreed upon by the opposition division. The appellant rather relies on the skilled person's ability to determine that amount using standard laboratory spectroscopic techniques such as NMR, UV, IR and Raman spectroscopy, in particular quantitative  $^1\text{H}$ - and  $^{29}\text{Si}$ -NMR spectroscopy. The appellant refers in this regard to experimental report D24, declaration D25 and document D26. It is undisputed that the patent in suit does not mention those techniques.



However, in agreement with the declaration D25 by a scientist in the field of polysiloxanes, the Board is convinced that quantitative  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR spectroscopy were conventional analytical methods in the field of siloxane polymers the skilled person would necessarily have thought of at the date of filing of the patent in suit in order to determine the structure of the present modified polysiloxanes and their intermediate products. In this regard, the respondent did not dispute at the oral proceedings that quantitative  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR spectroscopy had been long known in the art before the date of filing of the application and used in the field of polysiloxanes. Furthermore, in the Board's opinion an experienced practitioner desiring to make a proper quantitative  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR analysis of the present modified polysiloxanes and their intermediate products would have, if necessary, sought assistance of a specialist of these analytical methods.

There is therefore no doubt for the Board that despite the absence of information in this respect in the patent in suit, the skilled person taking into account common general knowledge would be able not only to reliably perform such  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR measurements, but also to identify the peaks of interests based on known chemical shifts. The absence of indication in D24 of the manner the  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR measurements were exactly carried out or the absence of information concerning some parts of the spectra has no bearing on that conclusion.

12. As to whether quantitative  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR analysis is in the present case a suitable tool to determine the amount of hydrophilic oligomer/polymer moieties covalently incorporated in the polysiloxane-based

binder matrix in accordance with claim 1, it is useful at this juncture to remember that the issue to be decided is not whether the skilled person has at their disposal a method to determine that amount for any given unknown polysiloxane-based matrix. The question is rather whether the skilled person would be able to determine that amount while having knowledge of the information concerning the preparation process of the binder matrix taught in the patent in suit, addressed in above point 10, and the intermediate products obtained for its preparation, which are also available for analysis when carrying out the teaching of the patent in suit.

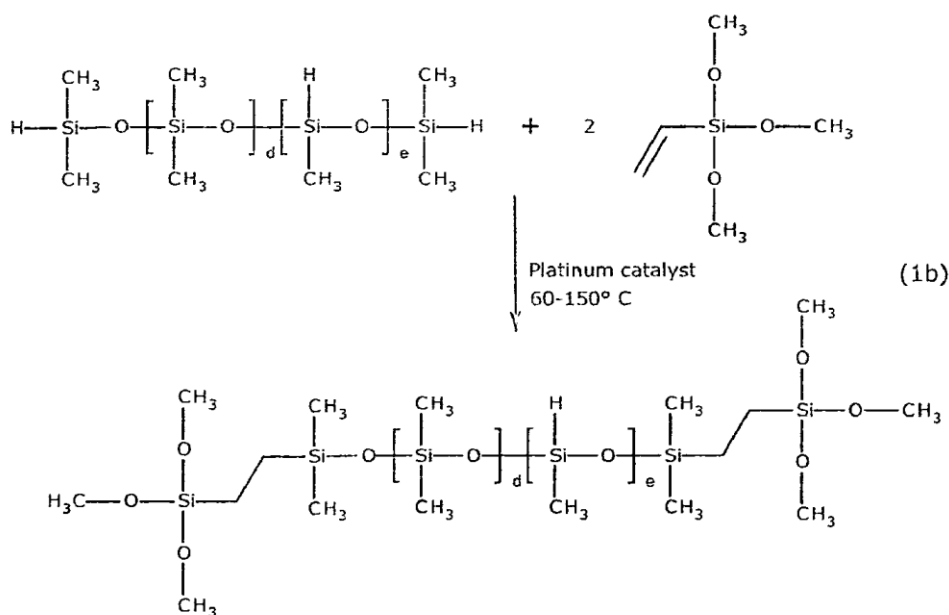
Hence, even if, as rightly noted by the respondent, claim 1 does not relate to a process for the manufacture of a polysiloxane with hydrophilic oligomer/polymer moieties, the knowledge of that process is in any event relevant for determining the amount of hydrophilic oligomer/polymer moieties covalently incorporated in the polysiloxane-based binder matrix.

The decisive point is also not whether the skilled person is able to make a full quantitative analysis of the  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR spectra of the binder matrix and intermediates, but to identify relevant peaks on the basis of which reliable information can be gathered to determine the amount of hydrophilic oligomer/polymer moieties.

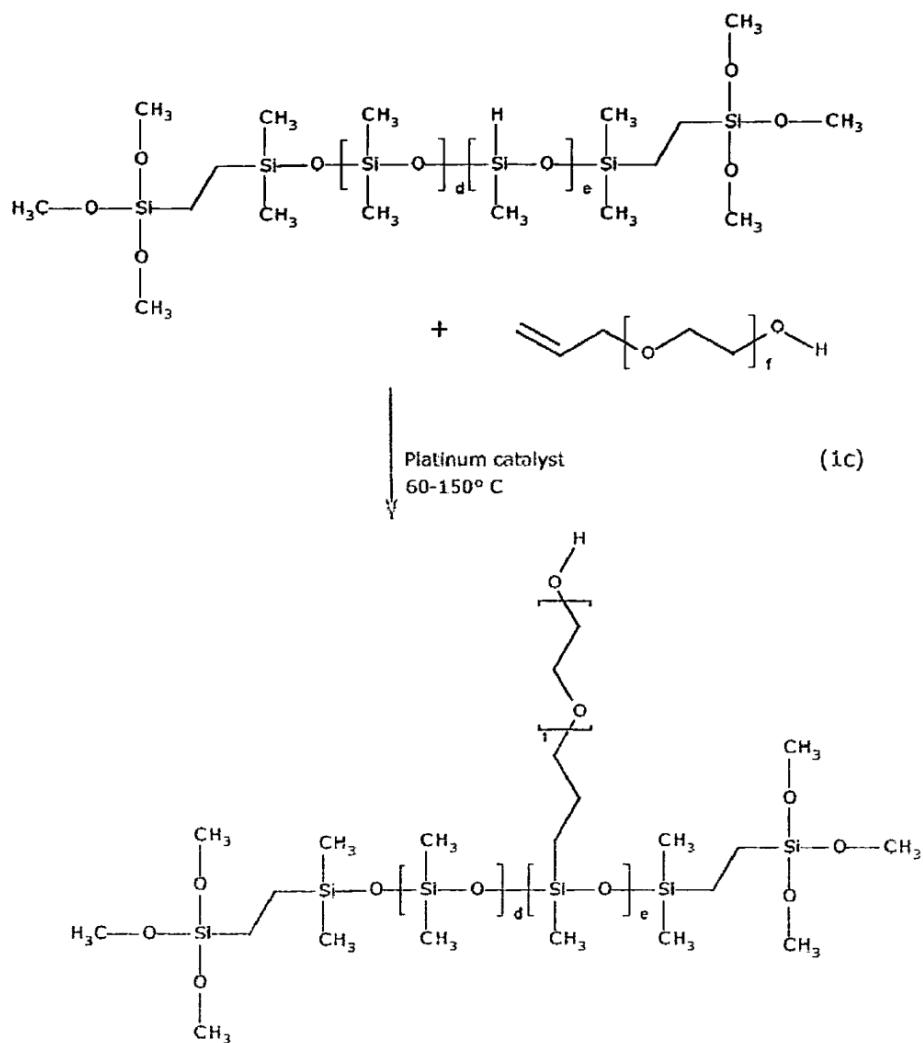
Concerning the respondent's argument that toluene and xylene used for the synthesis of HMP3 would necessarily need to be removed before  $^1\text{H}$ -NMR spectroscopy measurement as they would otherwise mask the relevant signals, the Board is convinced that the skilled person

would find it obvious to apply conditions for removing those solvents which do not affect the product to be analysed, using for example mild temperature conditions and reduced pressure.

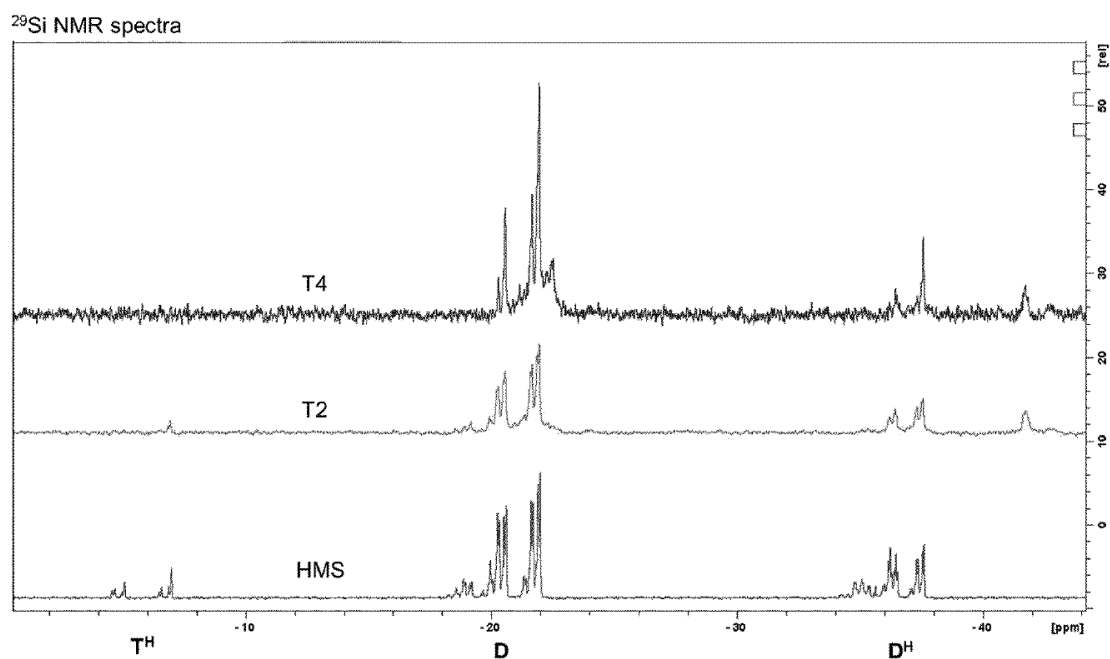
13. Experimental report D24 relied upon by the appellant concerns the preparation of the hydrophilic modified polysiloxane HMP3 described in paragraph 178 of the specification, i.e. a polysiloxane having hydrophilic oligomer/polymer moieties attached as pendant moieties to the polysiloxane backbone. Polymer HMP3 is prepared in accordance with the synthesis described in paragraphs 55, 56 and 178 of the patent for which an illustrative reaction scheme, i.e. reactions (1b) and (1c), is shown on page 7 thereof. The synthesis comprises in a first step the reaction of a hydride terminated polydimethylsiloxane-methylhydrosiloxane polysiloxane (here after HMS) with a vinyltrimethoxysilane in accordance with reaction (1b) leading to the introduction of crosslinking groups.



The reaction is here schematically represented to take place at the terminal Si-H groups, but the parties agree that it can take place as well at non-terminal Si-H groups. The product of the reaction obtained after this first stage is an intermediate product designated T2 in D24 which is then reacted with polyethylene glycol mono allyl ether in accordance with reaction (1c) resulting in the grafting of polyethylene glycol groups (i.e. hydrophilic oligomer/polymer moieties) onto the polysiloxane having crosslinking groups. It is also uncontested that the reaction can take place at terminal Si-H groups. The obtained hydrophilic modified polysiloxane HMP3 having crosslinking groups is named in D24 T4.



14. Figure 2 of D24 shows the  $^{29}\text{Si}$  NMR spectra of the starting compound HMS, the intermediate product T2 and the final product T4. These spectra exhibit peaks corresponding to the non-reactive Si containing groups  $-\text{O}-\text{Si}(\text{CH}_3)_2-\text{O}-$  (D), the terminal Si-H groups (TH), the non-terminal Si-H groups (DH), as well as peaks corresponding to the crosslinking groups  $(-\text{CH}_2-\text{Si}(\text{OCH}_3)_3)$  attached onto HMS during the first step of the reaction.



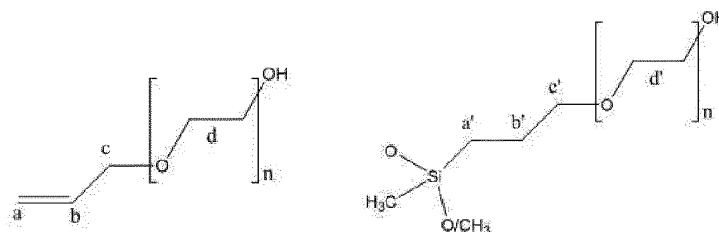
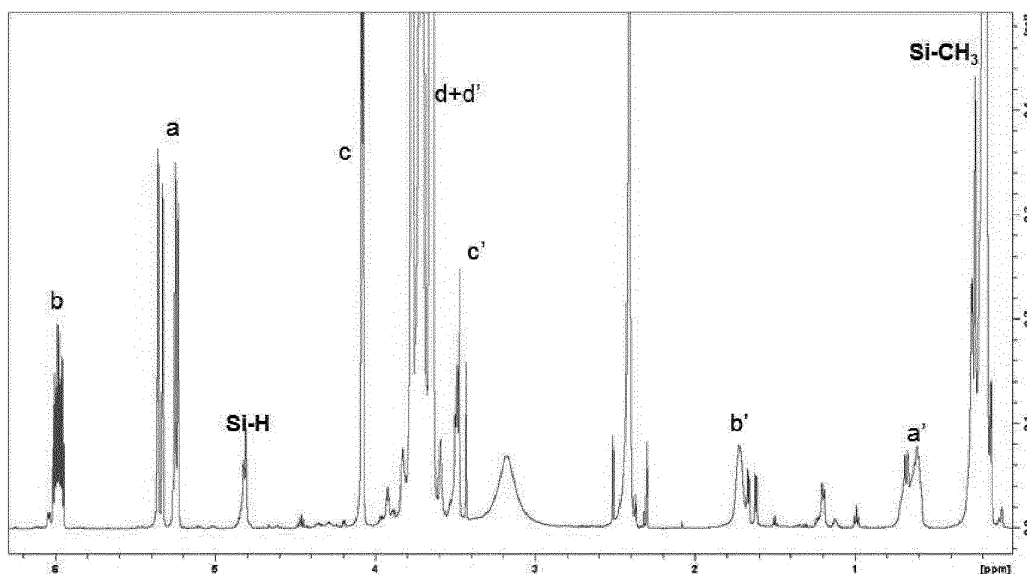
By comparing the signal of the peaks D with that of the peaks TH and DH, a reduction of the concentration of the non-terminal Si-H groups and terminal Si-H groups can be observed for both the intermediate product T2 and the final product T4. As far as intermediate T2 is concerned, said reduction can be quantified by the skilled person using as a reference the signal of the peaks D, as the latter are not affected by reaction (1b). In the alternative, the skilled person can select an appropriate conventional calibration standard for  $^{29}\text{Si}$  NMR spectroscopy.

The Board is therefore convinced that the proportion of initial Si-H bonds (either terminal or non-terminal) which has reacted after the first stage of the reaction when introducing cross-linking functional groups can be quantified by  $^{29}\text{Si}$  NMR spectroscopy. Based on that information, the skilled person who knows the formula of the starting compounds used for the first reaction and their molecular weight can calculate the molecular weight of the intermediate polysiloxane having cross-linking groups.

15. Similarly, the skilled person can also quantify the proportion of remaining Si-H bonds, terminal and non-terminal, which in the second stage of the reaction has reacted with the PEG mono allyl ether. In this manner the skilled person can determine the amount of PEG mono allyl ether successfully grafted on the intermediate product. As pointed out by the respondent, the second step of the reaction (1c) is accompanied by the appearance of a new peak around -18 ppm to -22 ppm which peak can be reasonably attributed to the Si atoms onto which the PEG groups are attached through the propyl moiety. Should the skilled person due to the appearance of this new peak not be in the position despite a deconvolution process to use as a reference the signal of the peaks D, the skilled person could as already mentioned above use an appropriate conventional calibration standard.

Moreover, figure 1 of D24 shows the  $^1\text{H}$  NMR spectrum of the final reaction mixture T4. This spectrum shows characteristic signals for allyl hydrogens (a, b, c) in the PEG mono allyl ether, i.e. corresponding to the unreacted PEG mono allyl ether present in the T4 mixture, and characteristic signals from the three sets

of methylene signals (a', b', c') emerging after hydrosilylation of the allyl group, which signals can be distinguished from the signals a, b and c of the unreacted PEG mono allyl ether.



On that basis, taking as a reference an appropriate conventional calibration standard for <sup>1</sup>H-NMR spectroscopy or the signal for the protons of the Si-CH<sub>3</sub> groups, whose amount is not modified by reaction (1c), it is also credible that the skilled person using <sup>1</sup>H-NMR spectroscopy would be able to measure the intensity of signals a, b and c before and after reaction (1c) so as to quantify the amount of PEG mono allyl ether successfully grafted on the modified polysiloxane comprised in intermediate product T2.

16. Hence, taking into account

(i) the molecular weight of the modified polysiloxane having cross-linking groups which can be determined for example as indicated in above point 14,

(ii) the molecular weight of the PEG mono allyl ether used as starting compound and

(iii) the proportion of Si-H bonds (either terminal or non-terminal) which has undergone reaction with the PEG mono allyl ether, as determined by  $^{29}\text{Si}$ -NMR spectroscopy, or the proportion of PEG mono allyl ether which has been consumed by that reaction, as measured by  $^1\text{H}$ -NMR spectroscopy,

the skilled person could finally determine the amount of hydrophilic oligomer/polymer moieties (PEG) covalently incorporated in the polysiloxane-based binder matrix.

Based on the above, the Board is therefore convinced that quantitative  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR analysis would be not only a suitable means to determine the amount of hydrophilic oligomer/polymer moieties (PEG) covalently incorporated in the polysiloxane-based binder matrix, but also that neither the use of these techniques, nor the calculations based on the intensity of the peaks relevant to determine the amount of hydrophilic oligomer/polymer moieties (PEG) covalently incorporated in the polysiloxane-based binder matrix would constitute an undue burden or require inventive ingenuity.

17. Moreover, while the two-dimensional NMR spectra shown in figures 3 and 4 are useful to understand the



structure of the modified polydimethylsiloxane-methylhydroxiloxane, as they demonstrate that the cross-linking agents and the PEG mono allyl ether are successfully reacted with the terminal and non-terminal Si-H groups of HMS, there is no need to have recourse to this type of technique to determine the amount of hydrophilic moieties successfully grafted on the polysiloxane backbone and therefore the weight proportion of hydrophilic oligomer/polymer moieties in the polysiloxane-based binder matrix.

Concerning the respondent's arguments in relation to self-condensation of VTMO (item 34 on page 8 of the rejoinder), this argument is not convincing, as such a phenomenon would have no impact on the determination of the Si-H consumption and also because it would assume the presence of water during the reaction, which is not reasonable. The respondent's argument concerning potential side reactions in items 34 and 35 of the rejoinder also fails to convince, since these side-reactions also lead to the introduction of hydrophilic oligomer/polymer moieties in the polymer binder which will be also determined by quantitative  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR spectroscopy through the consumption of the Si-H bonds or the PEG mono allyl ether.

18. Furthermore, while many questions have been raised by the respondent concerning the  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR spectra shown in D24, that party did not submit any counter-evidence to D24 and D25 in order to support their allegation that quantitative  $^1\text{H}$ - and  $^{29}\text{Si}$ -NMR spectroscopy would not have been considered by the skilled person as an appropriate tool to reliably determine the amount of hydrophilic oligomer/polymer moieties covalently incorporated in the polysiloxane-based binder matrix.

D26 which is a patent application from the respondent rather reinforces the Board's conclusion based on the above analysis that  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR analysis would for the skilled person be a suitable and known means to determine the amount of hydrophilic oligomer/polymer moieties (PEG) covalently incorporated in the polysiloxane-based binder matrix. As indicated in above point 7, D26 mentions on page 18, lines 9-12 that the proportion of hydrophilic moieties of non-ionic hydrophilic-modified polysiloxanes, whose structure shown on pages 19 and 20 is similar to those prepared in the patent in suit, can be determined using NMR. The sole difference in structure between the non-ionic hydrophilic-modified polysiloxanes taught in the patent in suit and those described on pages 18 and 19 of D26, namely the presence of a functional group, is in the Board's opinion not expected to impact the feasibility to use NMR spectroscopy in order to quantify the amount of polymeric hydrophilic moieties covalently bound to the polysiloxane. In addition, it is not apparent, and no argument was made in this respect, that a change of technology concerning NMR spectroscopy after the filing date of the patent in suit would have made it possible at the date of filing of D26 to measure the proportion of hydrophilic moieties in polysiloxanes.

19. Having regard to the Board's conviction that the skilled person would be in the position using such a method to determine the amount of hydrophilic oligomer/polymer moieties covalently incorporated in the polysiloxane-based binder matrix, the correctness in D24 of the integrals for  $^1\text{H}$ -NMR or  $^{29}\text{Si}$  NMR spectra indicated in figure 5 or the accuracy of the calculations of the amount of hydrophilic oligomer/polymer moieties in modified polysiloxane HMP3 which is

based on those NMR data is not decisive for assessing whether the present invention can be carried out by the skilled person.

20. As regards the alleged error associated with the quantitative  $^{29}\text{Si}$  NMR and  $^1\text{H}$  NMR spectroscopy, this is in the Board's opinion at most a question of clarity due to the absence of a definition in the claims under examination of a method and its conditions for determining the weight proportion of hydrophilic oligomer/polymer moieties in the polysiloxane-based binder matrix. Such alleged ambiguity is however not open to objections under Article 84 EPC in accordance with the ruling of G 3/14 (OJ 2015, A102), as claim 1 under examination, i.e. including the definition of the binder, is identical to claim 1 as granted. .
21. Moreover, in the absence of any argument to the contrary, the Board is also satisfied that the same analytical methods can be equally applied to measure the content of other hydrophilic oligomer/polymer moieties covalently incorporated in the polysiloxane-based binder matrix.
22. Under these circumstances, the Board concludes that the subject-matter of claim 1 and of claims 9 and 14, which also include the same definition of the binder, have not been shown to lack sufficiency of disclosure.

Concerning claim 10 which was also found by the opposition division to lack sufficiency of disclosure, the definition of the binder differs from that provided in claim 1 in that the binder is defined to carry at one or both ends  $-\text{Si}(\text{R}^*)_3$  groups, wherein each  $\text{R}^*$  independently is selected from  $\text{C}_{1-4}$ -alkyl and  $\text{C}_{1-4}$ -alkoxy, at least one being  $\text{C}_{1-4}$ -alkoxy. This specific

structure for the end groups of the binder does not affect the method to determine the amount of hydrophilic oligomer/polymer moieties introduced into the polymeric binder. For this reason, the same conclusion applies to the subject-matter of claim 10.

*Remittal*

23. The remaining grounds for opposition of lack of novelty and inventive step were not decided upon by the opposition division, let alone debated at the oral proceedings. Furthermore both parties have requested remittal if sufficiency of disclosure is acknowledged by the Board. This is seen by the Board to constitute "special reasons" within the meaning of Article 11 RPBA 2020 to remit the case for further prosecution to the department whose decision was appealed.

Accordingly, exercising its discretion under Article 111(1), second sentence, EPC, the Board decides to remit the case to the opposition division for further prosecution.

## Order

### For these reasons it is decided that:

1. The request for correction of Form 1038 of 14 January 2019 is allowed.
2. The fee for re-establishment of rights is to be reimbursed.
3. The request for exclusion of file inspection of the letter of 5 April 2019 with its annexes is allowed.
4. The decision under appeal is set aside.
5. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



D. Hampe

D. Semino

Decision electronically authenticated