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Datasheet for the decision of 3 February 2020

Case Number: T 0786/15 - 3.3.02

Application Number: 07832304.5

Publication Number: 2128208

IPC: C09D143/04, B05D7/24, C09D5/16, C09D7/12

Language of the proceedings: EN

Title of invention:

STAIN-PROOF COATING COMPOSITION, METHOD FOR PRODUCTION OF THE COMPOSITION, STAIN-PROOF COATING FILM FORMED BY USING THE COMPOSITION, COATED ARTICLE HAVING THE COATING FILM ON THE SURFACE, AND STAIN-PROOFING TREATMENT METHOD FOR FORMING THE COATING FILM

Patent Proprietor:

Nitto Kasei Co., Ltd.

Opponent:

Jotun A/S

Headword:

Relevant legal provisions:
EPC Art. 113(1), 83
EPC R. 111(2), 103(1)(a)
RPBA 2020 Art. 11

Keyword:
Appealed decision - substantial procedural violation (yes)
Sufficiency of disclosure - (yes)
Reimbursement of appeal fee - equitable by reason of a substantial procedural violation
Remittal to the department of first instance

Decisions cited:
T 0070/02, T 0608/07, T 0815/07, T 0246/08, T 0593/09, R 0019/10, R 0017/11, T 1845/14

Catchword:

Europäisches Patentamt
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Case Number: T 0786/15 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 3 February 2020

Appellant: (Patent Proprietor)	Nitto Kasei Co., Ltd. 17-14, Nishiawaji 3-chome Higashiyodogawa-ku Osaka-shi Osaka 533-0031 (JP)
Representative:	Vossius & Partner Patentanwälte Rechtsanwälte mbB Siebertstrasse 3 81675 München (DE)
Respondent: (Opponent)	Jotun A/S P.O. Box 2021 3202 Sandefjord (NO)
Representative:	Dehns St. Bride's House 10 Salisbury Square London EC4Y 8JD (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 9 February 2015 revoking European patent No. 2128208 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	M. O. Müller
Members:	P. O'Sullivan
	P. de Heij

Summary of Facts and Submissions

I. The appeal of the patent proprietor (hereinafter "appellant") lies from the decision of the opposition division to revoke European patent 2 128 208.

II. The patent was opposed under Article 100(a) (novelty and inventive step) and (b) EPC.

III. During opposition proceedings, *inter alia* the following evidence was cited:

D1 WO/0307832
D7 Declaration of M Dahling dated 19 April 2013
D8 "Experimental Report 1"
D9 "Experimental Report 2"
D14 E 1356-03 standard test method for DSC
D15 E 1640-04 standard test method for DMA

IV. According to the contested decision, the invention defined in the claims as granted was not sufficiently disclosed. Claim 1 was directed to an antifouling coating composition comprising *inter alia* a polymeric plasticizer and a triorganosilyl (meth)acrylate copolymer, both defined in part by reference to a glass transition temperature (hereinafter "Tg") range. Since the Tg strongly depended on the measurement method and conditions employed, and since the patent was silent in this regard, the skilled person was unable to establish whether a given copolymer had a Tg as required by claim 1, and was consequently unable to select suitable monomers which would yield copolymers with the desired Tg values.

V. With the statement of grounds of appeal the appellant filed the following:

D17 DSC and DMA sample measurement report
D18 Report of M Stommel dated 12 June 2015

VI. With the letter dated 13 March 2017 the appellant filed the following further evidence:

D19 Declaration of S Takahashi, English language translation
D20 E 1356-08 standard test method for DSC

VII. A communication of the board pursuant to Article 15(1) RPBA 2007 was sent in preparation of oral proceedings, scheduled in accordance with the corresponding requests of the parties.

VIII. Oral proceedings before the board were held on 3 February 2020 in the absence of the respondent as announced with the letter dated 3 January 2020.

Requests

IX. The appellant requests that the contested decision be set aside, that sufficiency of disclosure of the subject-matter of the claims as granted be acknowledged, and that the case be remitted to the first instance for examination of the further grounds for opposition. Reimbursement of the appeal fee is also requested.

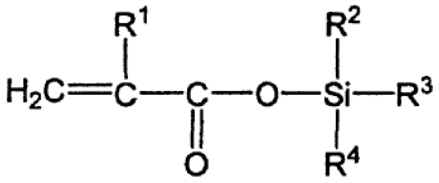
The respondent requests dismissal of the appeal.

X. Independent claim 1 of the main request (patent as granted) reads as follows:

"1. An antifouling coating composition comprising:

(1) a polymeric plasticizer comprising an ethylenically unsaturated carboxylate polymer having a glass transition temperature of not greater than -20°C and a number average molecular weight of 500 to 20,000;

(2) a triorganosilyl (meth)acrylate copolymer, which is a copolymer of triorganosilyl (meth)acrylate monomer A represented by General Formula (I):



(I)

wherein R^1 represents a hydrogen atom or methyl group, and R^2 to R^4 may be the same or different independently and represent a branched alkyl group having 3 to 8 carbon atoms or phenyl group, with ethylenically unsaturated monomer B other than the monomer A, the triorganosilyl (meth)acrylate copolymer having a glass transition temperature of not less than 0°C and a number average molecular weight of 5,000 to 100,000; and

(3) an antifoulant."

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

Main request - sufficiency of disclosure

The Tg feature of components (1) and (2) of the antifouling coating composition of claim 1 was an essential feature of the invention. Since numerous ways of measuring Tg existed, and the patent was silent with regard to which specific method was to be employed, the skilled person was unable to assess whether a given component of said composition possessed a Tg within the required range. The data provided in *inter alia* D9, D14, D17 and D18 merely confirmed that the skilled person did not know which method to use, leading to a large discrepancy in results obtained. The Tg parameter was thus so ill-defined in the patent that the person skilled in the art was unable to identify the technical measures necessary to solve the problem underlying the patent at issue (citing T 593/09 and T 815/07). The invention defined in claim 1 was consequently not sufficiently disclosed for it to be carried out by a person skilled in the art.

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

Substantial procedural violation

The opposition division in its decision disregarded many of the arguments submitted by the appellant concerning the ground for opposition under Article 100(b) EPC. As a consequence, the decision was not sufficiently substantiated, resulting in a substantial procedural violation. In view of this, reimbursement of the appeal fee was justified.

Main request - sufficiency of disclosure

The fact that several methods existed for measuring the Tg of the components of claim 1 at issue did not lead to the conclusion that the invention defined in claim 1 was not sufficiently disclosed. Rather, the question to be answered was whether a skilled person based on their expertise was able to reproduce the claimed antifouling composition of the contested patent without undue burden. While a lack of a clear definition of a newly formulated and unfamiliar parameter may have led to an objection of insufficient disclosure, the Tg was a commonly used and well known parameter for which standards existed.

Reasons for the Decision

1. Substantial procedural violation

1.1 The contested patent is directed to antifouling coating compositions comprising (1) a particular polymeric plasticiser, (2) a particular triorganisilyl (meth)acrylate copolymer and (3) an antifoulant (claim 1). The components (1) and (2) of the composition are partially characterised in claim 1 at issue by reference to the Tg of the component. Thus, the Tg of component (1) is "not greater than -20°C" and the Tg of component (2) is "not less than 0°C". The patent is silent as to which method is to be used to measure Tg.

1.2 The opposition division revoked the patent based on the ground for opposition under Article 100(b) EPC, concluding that in the absence in the patent of a

specific method to measure Tg, the skilled person was unable to establish whether a given component of a composition had a Tg as required by claim 1.

1.3 The appellant submitted that the opposition division, in its decision, disregarded many of the arguments brought forward by the appellant in favour of acknowledging sufficiency of disclosure. As a consequence, the decision was not sufficiently substantiated, resulting in a substantial procedural violation. Some of the allegedly disregarded arguments include

(a) that the patent did not itself describe any method of measuring Tg did not render the invention defined therein insufficient, if the skilled person based on expertise, was able to find suitable components falling within the scope of the claim and decide whether they could be used according to the invention by measuring their Tg;

(b) that it lay within the expertise of the skilled person to calibrate a DSC or DMA apparatus with suitable standards and to choose the appropriate measuring point when evaluating the sample. Thus, if the reproduction of the embodiments in the opposed patent led to Tg values that differed from those disclosed in the patent, the difference in temperature could be minimized by reverse engineering, thereby calibrating the measuring system used; and

(c) that the Tg measurements carried out by the opponent in D7, the Tg values determined by calculation in D1 as well as those stated in the opposed patent were almost identical to the values

in D9, which provided evidence that the skilled person was able to reproduce the claimed antifouling coating compositions and measure the Tg;

1.4 In respect of arguments (b) and (c), the appellant referred to the minutes of oral proceedings before the opposition division (paragraph bridging pages 1 and 2), where it was noted that a discussion on these topics took place at oral proceedings before the opposition division, specifically:

"*In response, the Proprietor stated that a skilled person was able to measure a Tg. The patent did not invent a method for measuring a Tg. The invention was directed to three major compounds which per se were known (see D2 to D6) and commercially available, the Tg of which were already measured and known. The Opponent ignored that* ***outside experiments had been made (D8, D9, D10) which compared DSC and DMA measuring methods, the results obtained from DSC measurement were almost identical to those obtained from DMA measurement. Also the Opponent's reproduction of the polymers in D1 (D7) gave Tgs which were close to those Tgs calculated in D1. The experimental error was low. It was within the skill of an expert to select within the DSC measurement this Tg from the three options (Tf, Tm, Ti) which was the most appropriate one. The standard (D14) gave a recommendation. The heating rate might be changed but the skilled person had to calibrate.*** *The calculation of the Tg by Fox was merely an approximation. The skilled person was aware of this and would never use the calculation method for more detailed results*" (emphasis added by the board).

1.5 Given the presence of the above statement in the minutes of oral proceedings, it is beyond question that at least the underlined arguments were brought forward by the appellant during oral proceedings before the opposition division. Furthermore, the same issues were submitted in written opposition proceedings: in the reply to the notice of opposition dated 7 November 2013 (page 2, third full paragraph), the appellant submitted that in the experiments carried out by the opponent in D7, the Tg measured was identical to that calculated in D1. Further detailed arguments in respect of the experimental evidence D8, D9 and affidavit D10 and their relevance in support of acknowledging sufficiency of disclosure was submitted by the appellant with the letter of 13 November 2014 (section 1.1). In the same letter, it was argued that the person skilled in the art will in any case calibrate the measuring apparatus with standards exhibiting known Tg values, in order to obtain values that are comparable within the context of measuring accuracy (paragraph bridging pages 2 and 3).

1.6 Thus this evidence and argumentation was advanced by the appellant during opposition proceedings.

1.7 In view of this, it must be determined whether the opposition division's decision is silent with regard to said underlined arguments.

1.8 In the contested decision the opposition division only directly addresses the appellant's arguments that the skilled person would prefer an experimentally determined measurement of Tg to a calculated measurement using the Fox equation (page 5, first paragraph). D9 is only mentioned in the context that it showed that the Tg may vary by at least 8°C depending on the choice of transition point (decision, 2.3),

although it is then concluded that D9 is not according to the ASTM method of D14. D9 is also mentioned briefly in section 2.4, whereby it is stated that the graphics depicted therein were incorrect due to reversed curves. How this conclusion was reached is not explained.

1.9 The decision is however completely silent with regard to the appellant's argument that, based on the evidence on file, it was irrelevant which exact Tg measurement method was used since the values obtained were almost identical, and that consequently, the skilled person was able to reproduce the claimed antifouling coating compositions and measure the Tg values of the relevant components. Furthermore, the decision is silent with respect to the argument that it was within the ability of the skilled person to select within a DSC measurement the most appropriate Tg value from the options available - in particular, that the standard D14 "gave a recommendation" (c.f. cited passage in the Minutes of oral proceedings, supra). Finally, the decision is silent with respect to the appellant's argument that the skilled person would calibrate the chosen measurement method against the specific value provided for the products of the production examples of the patent.

1.10 Hence the above-mentioned arguments put forward by the appellant in written and oral proceedings before the first instance were not addressed in the decision of the opposition division.

1.11 Whether this omission constituted a substantial procedural violation needs to be assessed.

1.12 According to Rule 111(2) EPC, decisions of the European Patent Office which are open to appeal shall be reasoned.

1.13 Although the opposition division is not required to address each and every argument presented by the party, the important question is whether the party concerned can objectively understand whether the decision was justified (R 19/10, reasons 6.2 and R 17/11, reasons 4).

1.14 In this respect, it is a general principle of good faith and fair proceedings that reasoned decisions contain, in addition to the logical chain of facts and reasons on which every decision is based, at least some motivation on crucial points of dispute in the line of argumentation in so far as this is not already apparent from other reasons given, in order to give the party concerned a fair idea of why its submissions were not considered convincing and to enable it to base its grounds of appeal on relevant issues (T 70/02, reasons 7). A decision which fails to explicitly take into account potentially refutative arguments submitted by a party constitutes a substantial procedural violation. Thus, the points to be addressed in the decision are in particular those which may cast doubt thereon (T 246/08, reasons 2.2).

1.15 The lines of argument put forward by the appellant (i.e. those discussed under points 1.4-1.9 above) were potentially decisive for the outcome of the proceedings. Thus it was necessary to address those arguments in the reasons underlying the decision. Disregarding such crucial arguments, whether convincing or not, contravened Rule 111(2) EPC, and as a

consequence Article 113(1) EPC, and constitutes a substantial procedural violation.

1.16 As set out below, the board concludes in contrast to the opposition division's decision that the ground for opposition under Article 100(b) EPC does not prejudice maintenance of the patent as granted on the basis of the appellants argument addressed in point 1.9, above.

2. Sufficiency of disclosure

2.1 Claim 1 as granted concerns an antifouling coating composition comprising

(1) a polymeric plasticizer comprising an ethylenically unsaturated carboxylate polymer **having a Tg of not greater than -20°C** and a number average molecular weight of 500 to 20,000;
(2) a triorganosilyl (meth)acrylate copolymer, which is a copolymer of triorganosilyl (meth)acrylate monomer A represented by general formula (I) [depicted in the claim] ... with ethylenically unsaturated monomer B other than monomer A, the triorganosilyl (meth)acrylate copolymer **having a Tg of not less than 0°C** and a number average molecular weight of 5,000 to 100,000; and
(3) an antifoulant

Thus as already set out above, claim 1 requires that both component (1) and (2) display a Tg within a specified range.

2.2 That numerous methods exist for measuring the Tg of components (1) and (2), and that the patent fails to indicate any method for its measurement, was not disputed by the appellant.

As examples of components (1) of claim 1, the patent includes *inter alia* production example 7 which concerns the production of polymeric plasticizer (1)-1, corresponding to component (1) of claim 1 at issue, characterised as having a Tg of -51°C (patent, paragraph [0115]). Component (2) of claim 1 is exemplified in *inter alia* production example 1 of the patent, which concerns the production of copolymer (2)-1, characterised as having a Tg of 39°C (paragraph [0111]).

2.3 The respondent submitted that in view of the lack of information in the patent, the person skilled in the art was unable to determine whether a given polymeric component (1) or (2) had a Tg as required by the opposed patent, and consequently, whether a given composition fell within the scope of the claim. Documents D1, D9, D17 and D18 served as evidence that there were a number of methods for measuring Tg, all providing different values. Even using DSC, different points in the DSC curve were reported as the allegedly valid Tg value. Citing T 593/09 and T 815/07, the Tg parameter was so ill-defined in the patent that the person skilled in the art was unable to identify the technical measures necessary to solve the problem underlying the patent at issue, such that a lack of sufficient disclosure arose.

2.4 The question that arises with regard to sufficiency of disclosure is whether the skilled person, based on his common general knowledge at the priority date of the patent, or the patent itself, has sufficient guidance on how to select components (1) and (2) allowing the preparation of an antifouling coating composition recited in claim 1 at issue.

2.5 The parties were in agreement that the skilled person was aware of three ways in which the Tg value can be determined, namely by calculation (The Fox equation), DSC, or DMA. To determine whether the Tg parameter is so ill-defined as to prevent the skilled person from preparing a composition according to claim 1 at issue, it must be investigated **which methods** for determining Tg would be considered by the skilled person wishing to determine the Tg of component (1) and (2) of claim 1, and to **which extent** the Tg varies within those methods.

2.6 The Fox equation

The respondent submitted that the skilled person could calculate the Tg theoretically. Such a calculation using the Fox equation is disclosed in patent document D1 (page 19, line 30 to page 20, line 5; page 32, lines 9-12). D1 also discloses the possibility of calculating the Tg experimentally (page 19, lines 27-30). When determining whether a particular polymer fulfilled the Tg requirements of claim 1, the board is however in no doubt that the skilled person would favour an experimental method, and would therefore exclude theoretical calculation via the Fox equation.

2.7 Measurement by DSC and DMA

The parties agree that DSC is a common method for measuring Tg.

2.7.1 According to the respondent, the ASTM standard D14 showed that there were at least 6 temperature points in a thermal DSC curve, all of which could potentially be reported as the Tg value, namely To, Tf, Tm, Ti, Te and Tr, the values of the outer points on the curve, To and Tr being vastly different for the same material (D14,

figure 1). The patent on the other hand gave no information as to which value should be chosen, leaving the skilled person in the dark. The further evidence submitted by the appellant (D9, D17 and D18) also demonstrated a lack of consistency in terms of which point on the DSC curve was to be used as the Tg. Thus, D9 reported the point Tf as representing the Tg, while Tm was reported in D17, and Ti in D18. In D18, there was a 14.5°C variation in the value of the Tg depending on which point was taken (D18, DSC curves on page 5). Furthermore, sample preparation and heating and cooling rates should be reported since they were known to affect the Tg value measured. Again, none of this data was provided in the patent.

In the following the board will analyse these arguments and the evidence cited in detail.

2.7.2 D14 is the ASTM standard test method, designation E 1356-03 for assignment of the Tg by DSC, and is essentially identical to ASTM standard D20, designation E 1356-08, differing only in the edition date. The standards are equivalent to ISO standard 11357-2 (D14, paragraph 1.6; D20, paragraph 1.5). The following discussion will be limited to D14, but applies equally to D20.

2.7.3 Figure 1 of D14 is a DSC thermograph in which the six different points in the curve mentioned by the respondent are identified. However, while D14 states that Te, Tf, Ti and Tm are "*commonly used transition points associated with the glass transition region*" (paragraph 3.2.1), the "***midpoint temperature is most commonly used as the glass transition temperature***" (paragraph 3.2.1.5). In paragraph 10.7 it is also stated that the midpoint temperature Tm is preferred.

The points in the graph of figure 1 of D14 lying furthest apart in terms of temperature difference, To and Tr, are characterised in D14 as being "sometimes identified" (D14, 3.2.2). Thus while the identification of To and Tr may be complementary to other values listed, there is no indication in D14 that it would be technically reasonable to choose these points in isolation to characterise the Tg. The skilled person adhering to the standard D14, would therefore not choose the outer values To and Tr as the sole characterising temperature of a Tg value in order to determine whether a particular substance met the Tg requirements of claim 1. Consequently, the skilled person is directed by D14 to choose Tm as the value to be used when providing the Tg.

2.7.4 A similar argument was submitted by the respondent with regard to D18, which is an expert statement and experiment filed by the appellant with the statement of grounds of appeal. The assigned expert was provided with a sample of a copolymer (2)-1 and measured its Tg by DSC. According to the respondent there was a 14.5°C variation in the value of the Tg depending on which point was taken (D18, DSC curves on page 5), thus causing an unacceptable degree of uncertainty. Here the respondent focused on the statement in D18 according to which depending on the case, Tei,g and Tef,g points (the "onset" and "endpoint" values in the left hand curve of D18, page 3) could also be used ("*Je nach Anwendungsfall werden daneben noch die Anfangs- und Endtemperatur des Glasübergangs ("onset" bzw. "endpoint") $T_{ei,g}$ und $T_{ef,g}$ ... verwendet").*

2.7.5 However, D18 does not teach that the Tei,g und Tef,g points on the DSC curve may be used to report the Tg. Rather, D18 states that there were three possible

procedures for measuring the Tg, namely the "Halbstufenhöhenverfahren" (i.e. the midpoint method), the "Wendepunktverfahren" (i.e. the inflection point method) and the "Gleichflächenverfahren" (the equal area point method) (D18, page 2, final paragraph). The first paragraph on page 3 explains how the Tg in each of these methods defined above is to be identified. The subsequent paragraph mentions further points Tei,g and Tef,g only in the context of specific situations in which, in addition to the main three methods identified above, the skilled person might consider taking measurements. In the final paragraph bridging pages 3 and 4, it is explained that the inflection point method is of particular technical significance, while the "equal area" method only made sense in the context of a specifically shaped DSC curve. The author of D18 concludes that since such a shape would not be expected by testing an unknown polymer, the skilled person would favour measurement of the inflection point value, Ti. Thus D18 teaches that the skilled person would use Ti or Tm, but preferably Ti (taken for the reported values in D18), and the variation between those two values is much less than that referred to by the respondent (14.5°C).

2.7.6 As evident from the above, the number of measurement methods and values obtained with these methods that can reasonably be taken as the Tg value referred to in claim 1 is much more limited than alleged by the respondent. It is in particular only the Tf, Tm or Ti value measured by DSC that would be considered as the value representing Tg.

2.7.7 The board acknowledges that the values that can reasonably be taken as the Tg value in the experiments

filed by the appellant with D9, D17 and D18 are not entirely consistent.

2.7.8 D9, filed by the appellant during opposition proceedings, concerns the retesting of samples from the reproduction of polymeric plasticizer (1)-1 and copolymer (2)-1 of the patent according to D8 (also filed by the appellant) by a third party institute. Tg values using both temperature-modulated DSC and DMA were measured (D9, table on page 7). The Tg value measured using DSC is reported as the onset temperature. This corresponds to Tf in the curve of D14 (figure 1).

2.7.9 The same substances were tested in D17. This document was filed by the appellant with the statement of grounds of appeal and concerns a repetition of the experiments of D9 using a normal DSC measurement method and not the temperature modulated method disclosed in D9. In D17, in accordance with the preference recited in D14, the Tg was reported as Tm.

2.7.10 In D18, an opinion was also provided with regard to which point in a DSC curve the skilled person would choose when taking a Tg measurement. As set out above, D18 reported the Tg for copolymer (2)-1 according to the "Wendepunktverfahren", the inflection point method, corresponding to the point Ti,g in the DSC curve of D18, page 3, left hand side (which corresponds to the inflection temperature Ti in figure 1 of D14; see D18, section 4.0).

2.7.11 The data from D9, D17 and D18 is summarised in the following table; data for DMA measurements included therein are relevant to the board's assessment in this regard, infra.

Document	Plasticiser (1)-1 patent, paragraph [0115]	Copolymer (2)-1 patent, paragraph [0111]
Patent	Tg = -51°C	Tg = 39°C
D9	DSC, temperature-modulated, Tg = -49.1 (Tf) DMA, Tg = -49.2°C	DSC, temperature-modulated, Tg = 38.8 (Tf) DMA, Tg = 39.2°C
D17	DSC, Tg = -50.3°C (Tm) DMA Tg = -53.2°C	DSC, Tg = 40.6°C (Tm) DMA, Tg = 39.9°C
D18		DSC, Tg = 37.78°C, 36.54 °C (Ti, two separate measurements)

2.7.12 It is evident from this data that despite the inconsistency among the authors of D9, D17 and D18 in terms of which specific point in the DSC curve is chosen to represent the Tg (Tf, Tm or Ti), the skilled persons carrying out the experiments according to D9, D17 and D18 all arrived at experimentally derived Tg values very close to those reported in the patent.

2.7.13 Since even for identical methods of measurement a certain amount of experimental error is to be expected, the **extent** of the variation in the Tg values reported above is considered narrow. Thus, if anything, the data demonstrates that the skilled person is capable of determining whether potential components (1) and (2) of claim 1 have the required Tg value, and thus whether the composition concerned falls under the scope of claim 1 at issue, despite the patent being silent in respect of the method of measurement to be employed.

2.7.14 It was also noted by the respondent in this context, that in addition to the reported data for Tf provided in D9, the DSC curves provided therein depict what appears to be a Tm value of -45.22°C and 43.24°C for plasticizer (1)-1 and copolymer (2)-1 respectively (pages 9 and 11, respectively), which lie slightly further away from the values reported in the patent (see table, above). However, these values are still considered to represent a narrow variation from the values reported in the patent, and furthermore, the appellant has conceded that the temperature modulated method followed in D9, in contrast to the method of D17, was not performed according to a standard.

2.7.15 This conclusion still applies if the skilled person were to choose DMA as the method of measurement of the Tg. In particular, in D17 the Tg was measured following the standard ASTM E 1640-04 (D17, page 2), which corresponds to document D15. The board considers that the skilled person wishing to carry out Tg measurements by DMA for the purpose of claim 1 at issue, in the absence of specific instructions lacking in the patent, would turn to the standard measurement technique as disclosed in D15. According to D17, the Tg values obtained by this standard DMA method closely reflected the Tg values reported in the patent (table, above). Furthermore, even though the heating rate of 2°C/min reported in D9 (page 7) is different to D17 (and the standard D15, paragraph 11.4), the Tg values obtained by DMA still closely reflect those provided in the patent. Thus, also the data provided in D9 and D17 for DMA demonstrates that the skilled person is capable of determining whether potential components (1) and (2) of claim 1 have the required Tg value, and thus whether the composition concerned falls under the scope of claim 1 at issue.

2.7.16 The respondent additionally submitted that sample preparation, heating and cooling rates and other variables affected the Tg value obtained when the method of measurement was either DSC or DMA. However, the skilled person is aware of how samples are to be prepared, and in particular, will be expected to make reference to standards such as D14, D15 and D20. Furthermore, there is no evidence on file demonstrating that different preparation methods and heating values will lead to significantly larger differences in the extent of variation in the Tg measured. On the contrary, despite the methods of measuring Tg via DSC according to D17 and D18 varying in the heating rate (10°C/min in D17, table on page 4; and 20°C/min in D18, page 2, point 6 in the middle of the page), the measured Tg values are similar (incidentally, both rates of heating are according to the standard; D14, paragraphs 10.2 and 10.6).

2.7.17 In summary, there is no evidence on file casting doubt on whether the skilled person is able to measure the Tg value for the purpose of determining whether a specific component, and therefore a specific composition, falls within the scope of claim 1 at issue.

2.7.18 According to decision T 608/07, reasons 2.5.2:

"The issue of insufficiency dealt with in T 256/87 and the present case is an insufficiency which arises through ambiguity. Although the board accepts that, depending upon the circumstances, such an ambiguity may very well lead to an insufficiency objection, it should be born in mind that this ambiguity also relates to the scope of the claims, ie Article 84 EPC. Since, however, Article 84 EPC is in itself not a ground of opposition,

care has to be taken that an insufficiency objection arising out of an ambiguity is not merely a hidden objection under Article 84 EPC. It is the conviction of this board that ***for an insufficiency arising out of ambiguity it is not enough to show that an ambiguity exists, eg at the edges of the claims.*** *It will normally be necessary to show that the ambiguity deprives the person skilled in the art of the promise of the invention. It goes without saying that this delicate balance between Article 83 and 84 EPC has to be assessed on the merits of each individual case."* (emphasis added).

2.7.19 In the present case, and as set out above, the alleged ambiguity arises at the edges of the values recited in claim 1, i.e. when the Tg of components (1) and (2) are close to the values of -20 °C and 0°C respectively. In agreement with T 608/07 (followed by many decisions, most recently by T 1627/17, reasons 1.6 and T 1768/15, reasons 6.5.2), this in itself cannot lead to the conclusion that the invention defined in claim 1 at issue is insufficiently disclosed.

2.8 Reverse engineering

2.8.1 This conclusion applies *a fortiori* in view of the argument of the appellant, supported by D18 (page 4, final paragraph and page 6, second paragraph) and D19 (third and fourth paragraphs) that if in doubt, the skilled person could determine the appropriate method of measurement by reverse engineering. This could be done by reproducing the components of the composition of claim 1 according to the patent, measuring the Tg using a specific method, e.g. DSC or DMA, comparing with the value provided for the same substance in the patent, and adapting the measurement method to the

point where an identical Tg value is obtained as that reported in the patent. The method could then be verified by checking against the Tg provided for further examples in the patent. In such a way, the skilled person would be able to even eliminate the ambiguity at the edges of the Tg values recited in claim 1. Aware of slight variation in Tg values depending on the method of measurement and e.g. the point in the thermograph chosen to represent Tg, the skilled person would deploy a reverse engineering strategy in particular when working with components (1) and (2) whose Tg value is likely to fall close to the edges of the ranges recited in claim 1, thereby eliminating any possible ambiguity in these areas of the ranges recited.

2.8.2 The respondent was of the opinion that such a calibration by reverse engineering would not be possible since the skilled person would not know with which method to measure Tg, which conditions to use, and which particular Tg value to extract. This argument however misses the point entirely. The whole purpose of reverse engineering is to allow the use of any technically reasonable method to determine the Tg, as long as that method provides the same Tg for a specific substance as that recited in the examples of the patent. Thus, for example, if hypothetically an experimental measurement using DSC at a heating rate of 15°C/min and taking Tf as the Tg were to provide a value for the plasticiser of (1)-1 of the patent (paragraph [0115]) of -51°C, i.e. identical to that recited in said example, then that specific measurement method could then be reliably applied to determine whether other polymeric plasticisers (1) or copolymers (2) displayed Tg values falling within the scope of claim 1 at issue.

2.8.3 The respondent additionally argued that in contrast to the expert in D18, third parties would not be provided with a sample of the polymer (2)-1 in question for analysis (D18, page 1, section 2.0), which was presumably the same as that used in D9 and D17, but needed to make their own. This would involve attempting to repeat the example in question by the method reported in the patent, and then assuming that the products were identical.

2.8.4 However, the argument that reproducing said sample would represent an undue burden, or that the polymeric product of a repeated example would not be identical to the corresponding product in the patent can only be seen as mere speculation on the part of the respondent, who has not demonstrated evidence of experimental failure in this regard. On the contrary, the respondent in D7, filed in opposition proceedings, demonstrated that the repetition of several production examples for the polymers disclosed in D1 was possible (D7, paragraph 3). Indeed, no problems were reported by the respondent in the repetition in D7 of example C4 of D1, the product of which was reported in D7 to have a Tg of -41°C (method of measurement not provided), which was identical to the value disclosed for the same polymer in D1 calculated using the Fox equation (D1, table 3). Consequently, if calibration to identify the appropriate method for determining the Tg according to the patent were to be problematic, or be associated with undue burden for the skilled person, the burden of proof in this regard lies with the respondent. Since no such evidence was filed by the respondent, this burden has not been discharged.

2.9 Jurisprudence

2.9.1 The respondent also refers to decisions T 593/93 and T 815/07 in support of its position. According to T 593/09 (reasons 4.1.4),

"*where a claim contains an ill-defined ("unclear", "ambiguous") parameter and where, as a consequence, the skilled person would not know whether he was working within or outside of the scope of the claim, this, by itself, is not a reason to deny sufficiency of disclosure as required by Article 83 EPC. Nor is such a lack of clear definition necessarily a matter for objection under Article 84 EPC only. What is decisive for establishing insufficiency within the meaning of Article 83 EPC is whether the parameter, in the specific case, is so ill-defined that the skilled person is not able, on the basis of the disclosure as a whole and using his common general knowledge, to identify (without undue burden) the technical measures (eg selection of suitable compounds) necessary to solve the problem underlying the patent at issue*"

2.9.2 As set out above, in view of the possibility for the skilled person to calibrate the method of measurement of the Tg by reverse engineering, the Tg parameter recited in claim 1 is not considered ambiguous, even at values close to the end ranges of the recited values. As such the criteria set out in T 593/09 for establishing insufficiency cannot be fulfilled. Furthermore, T 593/09 refers to both T 608/07 (reasons 2.5.2) cited above as well as T 815/07 cited by the respondent as both underlying the same rationale (T 593/09, reasons 4.1.5). The conclusions drawn above are in line with the teachings of both T 593/09 and T815/07. For the same reasons, further decisions of the

Boards of Appeal concerning sufficiency of disclosure in relation to ambiguous parameters (*inter alia* T 1845/14) do not apply to the present case.

2.9.3 It follows that the invention defined in claim 1 at issue is disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

3. Reimbursement of the appeal fee

The appellant requested reimbursement of the appeal fee.

3.1 Rule 103(1)(a) EPC stipulates that the appeal fee shall be reimbursed in full where the board of appeal deems an appeal to be allowable, if such reimbursement is equitable by reason of a substantial procedural violation.

3.2 In the present case, the board considers that a substantial procedural violation has occurred. For that reason alone the appeal against the opposition division's decision is allowable. As proper consideration of the appellant's arguments might have led to a different decision and have avoided the need for appeal, reimbursement of the appeal fee is equitable.

Consequently, the appeal fee is to be reimbursed.

4. Remittal - Article 111(1) EPC

The appellant requests that the case be remitted to the first instance for examination of the further grounds for opposition.

4.1 Article 11 RPBA 2020 states that the board shall not remit a case to the department whose decision was appealed for further prosecution, unless special reasons present themselves for doing so. As a rule, fundamental deficiencies which are apparent in the proceedings before that department constitute such special reasons.

4.2 In the present case, although as concluded above fundamental deficiencies are apparent, the board, having examined the situation with regard to the alleged substantial procedural violation, finds itself in a position also to examine the ground for opposition under Article 100(b) EPC. In the interest of procedural efficiency therefore, and in line with the request of the appellant, the board examined the ground under Article 100(b) EPC.

4.3 Considerations regarding the further grounds for opposition under Article 100(a) EPC are absent from the contested decision. Additionally, neither party submitted arguments in appeal proceedings in this regard. The board therefore lacks a decision to review, and furthermore lacks any substantiation on which considerations and a decision could potentially be based. In the present case, in the absence of a remittal, these grounds for opposition would have had to be addressed during oral proceedings before the board for the first time. In the interest of fairness to the parties, as well as in view of the request of the appellant to remit, and in line with the expectation of the respondent (paragraph 48 of the reply to the grounds of appeal), the board decided to remit the case to the opposition division for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division for further prosecution.

3. The request for reimbursement of the appeal fee is allowed.

The Registrar: The Chairman:

N. Maslin M. O. Müller

Decision electronically authenticated