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**Datasheet for the decision  
of 11 December 2018**

**Case Number:** T 2119/14 - 3.3.03

**Application Number:** 04729093.7

**Publication Number:** 1625176

**IPC:** C08K5/00, C09D133/06,  
C09D167/00, C09D167/04

**Language of the proceedings:** EN

**Title of invention:**  
COATING COMPOSITION

**Patent Proprietor:**  
Allnex Netherlands B.V.

**Opponents:**  
BASF Coatings GmbH  
PPG Industries, Inc.

**Relevant legal provisions:**  
EPC Art. 100(b)  
RPBA Art. 13(1)

**Keyword:**

Sufficiency of disclosure (no) - multiple parametric  
definition - lack of guidance - undue burden (main request and  
auxiliary request 1)  
Auxiliary requests 2 to 5 - late filed - clearly allowable (no)  
- not admitted

**Decisions cited:**

T 0435/91, T 0063/06



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Case Number: T 2119/14 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 11 December 2018**

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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 26 August 2014  
revoking European patent No. 1625176 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman**            D. Semino  
**Members:**            F. Rousseau  
                              C. Brandt

## Summary of Facts and Submissions

- I. The appeal by the patent proprietor lies from the decision of the opposition division revoking European patent No. 1 625 176.
- II. The contested decision was based on the patent as granted (main request), auxiliary request 1 filed with letter of 4 November 2013 and auxiliary requests 2 to 4 filed during the oral proceedings on 1 July 2014, claim 1 of the patent as granted reading as follows:

"1. Coating composition for the manufacture of a car wash-resistant coating comprising at least one hydroxyl-functional binder selected from the group of hydroxyl-functional acrylic binders and hydroxyl-functional polyester binders and one or more cross-linkers reactive with the reactive groups of the binder, wherein the binder and cross-linkers are selected such that, after curing to a coating, the coating has an initial gloss of at least 81 GU and a loss of gloss (LoG) of less than 0.18, the loss of gloss being determined by the formula (I)

$$\text{LoG} = A + B \cdot E' \cdot (X)^{-1} \cdot 10^{(C \cdot \Delta T_g)} + D \cdot (E')^{-0,5} \quad (\text{I})$$

wherein A = 0.0132, B = 1.0197, C = 0.0113, and D = 0.0566, E' reflects the tensile storage modulus at 40°C in GPa,  $\Delta T_g$  the width of the glass transition temperature in °C, and X the cross-link density parameter in kPa/K, all three parameters determined in a DMTA test at 11 Hz and a heating rate of 5°C/min. and wherein, in case the at least one hydroxyl-functional binder is an acrylic binder, the acrylic binder comprises (1) at least 20 wt% based on the total weight of the monomers of hydroxyl group-containing monomers

selected from the group of primary hydroxyl group-containing monomers or hydroxyl cycloalkyl group-containing monomers, this acrylic binder comprises (2) more than 10 mole% of monomers selected from the group of non-OH-functional low Tg monomers with a monomer Tg not exceeding 253K for acrylic non-OH-functional monomers, or not exceeding 293 K for methacrylic or non-acrylic non-OH-functional monomers, and wherein (3) the average number of atoms between the polymeric backbone of the acrylic binder and the oxygen atom of the hydroxyl group is at least 6, and (4) the acrylic binder has an OHV value of between 80 and 250 mg KOH/g."

The wording of claim 1 of auxiliary request 1 differed from that of claim 1 of the main request in that the wording "said at least one cross-linker being an amino-functional cross-linker, an isocyanate-functional cross-linker, or a blocked isocyanate-functional cross-linker" was inserted right before the wording ", wherein the binder and cross-linkers are selected such that". The wording of the additional auxiliary requests is not relevant to the present decision.

III. According to the reasons for the contested decision the width of the glass transition temperature  $\Delta T_g$ , the tensile storage modulus  $E'$  and the cross-link density were in view of the specification well defined and measurable parameters and the opponents had failed to deliver unambiguous evidence that "the examples on file" could not be reworked with the information disclosed therein, their arguments being "based on many assumptions". It was also held that the coatings in Annex 1 to the opposition letter of opponent 1 were not considered to be a valid reworking of the examples of the contested patent. Based on those reasons only,

sufficiency of disclosure of the subject-matter in accordance with the main request and auxiliary request 1 was acknowledged. It was however found that the requests on file either did not meet the requirements of Article 56 EPC or of Article 84 EPC.

- IV. The patent proprietor (here after appellant) appealed the decision of the opposition division.
- V. The appellant submitted with letter of 30 November 2018 auxiliary requests 2 to 5, whose claims 1 contained the following amendments:

*Auxiliary request 2*

Compared to claim 1 of the main request, claim 1 of auxiliary request 2 contained the wording "said at least one cross-linkers (sic) being an amino-functional cross-linker or an isocyanate-functional cross-linker" inserted right before the wording ", wherein the binder and cross-linkers are selected such that".

*Auxiliary request 3*

Compared to claim 1 of auxiliary request 2, claim 1 of auxiliary request 3 contained the following additional text at the end of the claim:

"wherein in case the at least one hydroxyl-functional binder is a hydroxyl-functional polyester binder the binder and the cross-linker together amount to at least 90 wt% of the solids content of the coating composition and give a L1 value of less than 0.18, L1 being calculated according to formula (II):

$$L1 = A1 + A2.(Mn)^{-1} + A3.CL + A4.MF + A5.NCO + A6.CL.(Mn)^{-1} + A7.(MF)^2 + A8.MF.NCO \text{ (II)}$$

wherein Mn represents the number average molecular weight of all hydroxyl-functional binders in the composition, CL the carbon length, MF the weight fraction of the amino cross-linker on total solids in the coating composition, NCO is defined as the total concentration of NCO groups present in the cured coating composition expressed in mmole NCO groups/g, wherein A1 = -0.474, A2 = 457, A3 = 0.343, A4 = 2.17, A5 = 0.205, A6 = -812, A7 = - 2.37, A8 = -0.656, and wherein the at least one hydroxyl-functional polyester binder has an OHV value between 50 and 350 mg KOH/g and

wherein in case the at least one binder is a hydroxyl-functional acrylic binder, the binder and the cross-linker together amount to at least 90 wt% of the solids content of the coating composition and give a L2 value of less than 0.18, L2 being calculated according to formula (III)

$$L2 = B1 + B2.TG + B3.MW + B4.OHL + B5.LPF + B6.MF + B7.NCO + B8.TG.OHL + B9.MW.MF + B10.MW.NCO + B11.OHL.NCO + B12.(LPF)^2 + B13.OHL.MF \text{ (III)}$$

wherein TG represents the weight average theoretical glass transition temperature of all acrylic binders, MW the weight average molecular weight of all hydroxyl-functional binders in the composition, OHL the weight averaged hydroxyl length of all hydroxyl-functional acrylic binders, LPF the weight-averaged low polar fraction of low-Tg monomers in the acrylic binder, MF the weight fraction of the amino cross-linker on total solids in the coating composition, NCO is defined as the total concentration of NCO groups present in the cured coating composition expressed in mmole NCO



groups/g, B1= -1.0776, B2 = 0.00354, B3 = - 0.0000818, B4 = 0.2728, B5 = -0.17266, B6 = 1.304, B7 = 0.1354, B8 = -0.000373, B9 = 0.000269, B10 = 0.00004066, B11 = -0.08487, B12 = 0.2878, B13 = -0.6037, and wherein the at least one hydroxyl-functional acrylic binder has an OHV value between 80 and 250 mg KOH/g and

wherein in case both a hydroxyl-functional polyester binder and a hydroxyl-functional acrylic binder are present, both the polyester binder and the acrylic binder are present in more than 10 wt% of the solids content of the coating composition and give a L3 value of less than 0.18, L3 being calculated according to formula (IV)

$$L3 = C1.L1 + C2.L2 \text{ (IV)}$$

wherein C1 represents the total weight percentage of polyester binder, C2 the total weight percentage of the acrylic binder on total solids content of binders in the coating composition, L1 is calculated according to claim 2 and L2 according to claim 3, wherein L1 is calculated as if no acrylic binder is present and L2 is calculated as if no polyester binder is present"

*Auxiliary request 4*

Compared to claim 1 of the main request, claim 1 of auxiliary request 4 contained the expression "said at least one cross-linker being an amino-functional cross-linker" inserted right before the wording ", wherein the binder and cross-linkers are selected such that".

*Auxiliary request 5*

The wording of claim 1 of auxiliary request 5 corresponded to that of claim 1 of the main request in which the paragraph before formula (I) had been replaced by the following text:

"A car wash-resistant coating comprising at least one hydroxyl-functional binder selected from the group of hydroxyl-functional acrylic binders and hydroxyl-functional polyester binders and one or more cross-linkers reactive with the reactive groups of the binder said at least one cross-linker being an amino functional cross-linker or an isocyanate-functional cross-linker cured to a coating, the coating having an initial gloss of at least 81 GU and a loss of gloss (LoG) of less than 0.18, the loss of gloss being determined by the formula (I)".

- VI. Oral proceedings took place on 11 December 2018.
- VII. The appellant's submissions, as far as relevant for the decision, can be summarised as follows:

*Main request*

- (a) Paragraphs [0009] and [0010] made clear that the high car wash resistance of the coating composition was determined by the mechanical properties of the cured coating as expressed in the formula (I) and was not of a chemical origin. Very different chemical compositions could result in the same good car wash resistance as long as they could form a cross-linked network that met the mechanical requirements as specified in claim 1. That was the reason why claim 1 was defined in terms of the

mechanical parameters of the resulting coating which reflected the nature of the network in the cured coating, but not in chemical composition terms. In line with decision T 0435/91 (OJ EPO 1995, 188) the patent in suit provided the skilled person by means of formula (I) with a technical concept fit for generalisation, i.e. a concept that generalised the requirements for achieving high car wash resistance or a low loss of gloss resulting from car wash in terms of the mechanical requirements of the cross-linked network. The skilled person with this concept, the information provided in the specification and the common general knowledge would be directed to choose the coating composition components resulting in car wash resistant coatings with high gloss coatings and low loss of gloss.

- (b) The specification explained in paragraph [0011] to [0020] how to choose the binder and cross-linker such as to increase or decrease the values of  $X$ ,  $\Delta T_g$  and  $E'$  at  $40^\circ\text{C}$ . If for example the LoG value was too high,  $X$  could be increased or the  $E'$  at  $40^\circ\text{C}$  or  $\Delta T_g$  could be decreased. The specification taught that the number of cross-linking groups in the binder/cross-linker would increase  $X$  and that the cross-linking efficiency could be increased by extending the cross-linking groups or using appropriate known catalysts. The specification also taught in paragraph [0020] that more non-functional low  $T_g$  monomers could be built in in order to decrease  $E'$  at  $40^\circ\text{C}$ . This would shift the LoG in the right direction and, if it was not enough in one go, maybe one more experiment was needed, but no excessive trial and error experimentation was required.

- (c) Although the parameters  $X$ ,  $\Delta T_g$  and  $E'$  at  $40^\circ\text{C}$  influenced each other, their values could be independently tailored using the measures taught in the specification.
- (d) The formulae L1, L2 and L3 disclosed how to choose the molecular chemical features of the binder and cross-linker in the coating compositions in view of achieving low loss of gloss, for polyester binders, for polyacrylate binders and for mixtures thereof respectively. If a composition having a calculated L1 or L2 of less than 0,18 did not result in a coating exhibiting a LoG value of less than 0,18, then the parameters used for calculating L1 and L2 could be further adjusted to lower L1 and L2 which resulted in a lower LoG. This would take one or maybe two experiments of an average skilled person working with synthetic propensity.
- (e) Many examples supported the claims and showed how variations in the molecular parameters of the binder and the cross-linker resulted in different values of  $X$ ,  $\Delta T_g$  and  $E'$  at  $40^\circ\text{C}$ . The skilled person was thus fully enabled to choose the components such that the requirement in respect of LoG was met. There was no undue burden because no random experimental trial and error was needed to arrive at the low LoG.
- (f) According to T 0068/85 (OJ EPO 1987, 228) functional features defining a technical result were permissible in a claim (i) if, from an objective point of view, such features could not otherwise be defined more precisely without restricting the scope of the invention, and (ii) if these features provided instructions which were

sufficiently clear for the expert to reduce them to practice without undue burden, if necessary with reasonable experiments. In the present case, it was also not possible to get fair and sufficiently broad protection for a coating composition without using the mechanical parameters of the resulting cross-linked coating because the car wash resistance (LoG) was determined by the mechanical parameters of the cured coating and the chemical composition of the binder and cross-linker was not the primary important feature for scratch resistance.

- (g) Accordingly, the skilled person, having regard to information contained in the specification and common general knowledge, and possibly also after having carried out normal experiments, would be provided with at least a plurality of different embodiment variants.
- (h) The respondents never contested that the claims were enabled over part of the claim, but stated that the claims were not enabled over the full scope of the claim. However, the respondents, who carried the burden of proof for that allegation, had not provided any evidence that it would be undue burden for the skilled person to arrive at the claimed subject matter.
- (i) Accordingly, the requirement of sufficiency of disclosure was met for the main request.

*Auxiliary request 1*

- (j) Auxiliary request 1 required that the cross-linker was isocyanate or amino functional, so that all

cross-linkers defined in claim 1 were used in the examples. Accordingly, the scope of applicability of the teaching of the patent in suit was even more in accordance with the scope of claim 1 of auxiliary request 1. The requirement of sufficiency of disclosure was therefore also met for that auxiliary request.

*Auxiliary requests 2 to 5*

- (k) Auxiliary requests 2 to 4, in particular auxiliary request 3 restricted the definition of the polyester and polyacrylate binders to those having a L1 and L2 value, respectively, of less than 0,18, so that the claimed subject-matter was closer to the examples of the patent in suit and in accordance with the teaching of the patent in suit. The definition in auxiliary request 5 that the subject-matter of claim 1 was directed to the cured coating rather than to the coating composition was made in response to the objection of the respondents that the granted claims were defined in terms of the resulting coating properties. Accordingly, the amendments contained in auxiliary requests 2 to 5 overcame the objections against the main request and auxiliary request 1. Consequently, they were *prima facie* allowable and should be admitted into the proceedings.

VIII. The submissions of the opponents (here after respondents), as far as relevant for the decision, can be summarised as follows:

*Main request*

- (a) The patent was directed to a coating composition which resulted after curing in a coating having an initial gloss of at least 81 GU and a loss of gloss (LoG) of less than 0,18. LoG was a completely new and constructed parameter. The claimed coating compositions comprised a hydroxyl-functional binder chosen from hydroxyl-functional acrylic binders and hydroxyl-functional polyester binders and a cross-linker. Neither the hydroxy-functional polyester binder nor the cross-linker reactive with the binder were defined in structural terms.
  
- (b) Hydroxy-functional polyester binders that could be used were described in paragraphs [0073] to [0082] of the specification. A large number of exemplary monomers to prepare that binder were mentioned and there was no instructions how to select and combine these monomers. Moreover, the definition of the cross-linker was also very broad, as indicated in paragraph [0083] of the specification. The patent comprised only one specific exemplified polyester binder (binder sample 10) and one comparative polyester binder (binder sample 12), the latter not leading to a coating having the required gloss properties, although it was made with monomers recommended in paragraphs [0073] to [0082] of the specification. One difference between the comparative polyester and the inventive polyester was that the comparative polyester had not been chain-extended with  $\epsilon$ -caprolactone. However,

according to paragraph [0075], chain extension of the binder was only a particularly preferred embodiment for polyester binders. In view of the experimental part of the specification, it was not apparent how the skilled person could prepare further polyester-based coating compositions meeting the parametric requirement of claim 1.

- (c) The coating composition of claim 1 merely defined a desired parametric result without giving any actual instructions as to how to achieve this result. Contrary to the patentee's allegations, a clear teaching, how a certain initial gloss and LoG could be achieved, was missing. The statements in paragraphs [0011] to [0015] were rather vague and partially contradicting. There was not the slightest hint in these passages as regarded the chemical nature of the binder and the cross-linker to be chosen to fulfill those requirements.
- (d) The parameter X,  $\Delta T_g$  and  $E'$  at 40°C could not be adjusted independently from each other, meaning that any change of one of those, for example by changing a monomer, would result in variations of the other parameters. In addition the magnitude of variation for each parameter which resulted of a change of monomer in the coating composition was unknown, so that it could not be determined which monomer had the most significant influence on the parameters X,  $\Delta T_g$  and  $E'$  at 40°C.
- (e) According to T 0435/91, the disclosure of an invention relating to a composition of matter, a component of which was defined by its function, was not sufficient if the patent disclosed only isolated examples but failed to disclose, taking



into account, if necessary, the relevant common general knowledge, any technical concept fit for generalization, which would enable the skilled person to achieve the envisaged result without undue difficulty within the whole ambit of the claim containing the "functional" definition.

- (f) It was not contested that the examples could be reworked, or that the skilled person would indeed be able to find some single compositions meeting the requirements of claim 1. However, according to the case law of the Boards of Appeal, the disclosure of one way of performing an invention was only sufficient if it allowed the invention to be performed in the whole range claimed rather than only for some members thereof. Even the indication of L1 being less than 0,18 could not support the whole breadth of claim 1 regarding polyester binders.
- (g) Having regard to the extremely broad range of monomers and cross-linkers whose use was envisaged, the absence of straightforward instructions how to select the ones which were appropriate, as well as their amounts, or how to correct initial failures, so that after curing the coating had a LoG value of less than 0,18, the preparation of coating compositions with a polyester-binder other than that exemplified in the patent in suit which met the parametric conditions of claim 1 necessitated in each single case a considerable amount of experiments, i.e. to proceed by trial and error which amounted to undue burden for the skilled person.

- (h) Accordingly, the opposed patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by the person skilled in the art and the main request was not allowable.

*Auxiliary request 1*

- (i) The definition of the cross-linker being an amino-functional cross-linker, an isocyanate-functional cross-linker, or a blocked isocyanate-functional cross-linker did not result in a different assessment of sufficiency of disclosure. Accordingly that request also should be refused.

*Auxiliary requests 2 to 5*

- (j) There was no justification for the late filing of auxiliary requests 2 to 5 and it was obvious that the modifications operated in those requests could not cure the lack of sufficiency of disclosure in respect of the main request. Accordingly, auxiliary requests 2 to 5 were not prima facie allowable and should not be admitted into the proceedings.

- IX. The appellant requested that the decision under appeal be set aside and the opposition be rejected (i.e. the patent be maintained on the basis of the claims as granted), or, in the alternative, that the patent be maintained in amended form on the basis of auxiliary 1 submitted with letter of 4 November 2013, or alternatively, on the basis of any of auxiliary requests 2 to 5 filed with letter dated 30 November 2018.

- X. The respondents requested that the appeal be dismissed. They also requested that auxiliary requests 2 to 5 submitted with letter dated 30 November 2018 not be admitted into the proceedings.

## **Reasons for the Decision**

### *Main request*

1. The objection that the invention lacks sufficiency of disclosure is directed against claim 1 defining a composition for the manufacture of a coating, which composition is characterized in terms of both structural features setting out the constituents of said composition and parametric features defining the coating obtained after curing said composition.
  - 1.1 The structural features define that the composition comprises at least one hydroxyl-functional binder selected from the group of hydroxyl-functional acrylic binders and hydroxyl-functional polyester binders and one or more cross-linkers reactive with the reactive groups of the binder. While the acrylic binders are defined by additional structural features, the hydroxyl-functional polyester binders, which are the sole hydroxyl-functional binders of claim 1 relevant for the present decision, are not further structurally defined.
  - 1.2 As to the parametric definition of claim 1, it sets out that the composition provides after curing a car wash-resistant coating, which has an initial gloss of at least 81 GU and meets the relationship

$$\text{LoG} = A + B \cdot E' (X)^{-1} \cdot 10^{(C \cdot \Delta T_g)} + D \cdot (E')^{-0.5} < 0,18,$$

wherein A, B, C and D are constants defined in claim 1, E' reflects the tensile storage modulus at 40°C in GPa,  $\Delta T_g$  the width of the glass transition temperature in °C, and X the cross-link density parameter in kPa/K, all three parameters being determined in a dynamic mechanical thermal analysis (DMTA) test at 11 Hz and a heating rate of 5°C/min.

*Preliminary remarks and definitions*

2. The objection of the respondents in respect of lack of sufficiency of disclosure mainly concerns the ability of the skilled person to prepare over the whole scope of claim 1 a coating composition which meets the above mentioned inequality. As indicated above the three parameters used in this inequality are all determined in a DMTA test which allows to measure the tensile storage modulus E', the tensile loss modulus E'' and determine  $\tan\delta$ , i.e. the ratio E''/E' of the cured coating as a function of the temperature. A description of this test and the signification of these three parameters is provided in paragraphs [0033] to [0035] of the specification.
- 2.1 The cross-link density parameter X is defined as the ratio between the minimum tensile storage modulus  $E'_{\min}$  and the temperature  $T_{\min}$  at which this modulus  $E'_{\min}$  is reached (i.e.  $X = E'_{\min}/T_{\min}$ ).  $E'_{\min}$  is a local minimum of the tensile storage modulus E' observed above the glass transition temperature Tg but below the rubber to liquid transition temperature, after which E' increases with the temperature (paragraph [0033]).

The temperature at which the fitted  $\tan\delta$  curve reaches a maximum is taken as the glass transition temperature  $T_g$ . The value of  $\Delta T_g$  is the width (in °C) of the fitted  $\tan\delta$  peak at half height (paragraphs [0034] and [0035]).

Finally, as defined in claim 1  $E'$  reflects the tensile storage modulus at 40°C and 11 Hz in GPa .

2.2 The appellant argued that in line with paragraph [0011] of the specification, it is the inventors' accomplishment to identify those parameters, in particular the tensile storage modulus  $E'$  at 40°C, the width of the glass transition temperature  $\Delta T_g$ , and the cross-link density  $X$ , that uniquely and precisely determine and define the loss of gloss in car washing conditions and their mutual relation as expressed in mathematical formula (I) defining the parameter LoG. According to paragraph [0011] the calculated LoG value accurately describes the observed loss of gloss as a result of a car wash treatment.

2.3 Whether the calculated LoG value as defined in claim 1 accurately describes the observed loss of gloss as a result of a car wash treatment is not relevant for assessing sufficiency of disclosure, as the observed loss of gloss is not a feature defining the subject-matter of claim 1. It is referred to decision G 1/03 of the Enlarged Board of Appeal (OJ 2004, 413) in which it was pointed out concerning non-working embodiments (point 2.5.2, third paragraph of the reasons), that if *"there is lack of reproducibility of the claimed invention, this may become relevant under the requirements of inventive step or sufficiency of disclosure. If an effect is expressed in a claim, there is lack of sufficient disclosure. Otherwise, i.e. if*

*the effect is not expressed in a claim but is part of the problem to be solved, there is a problem of inventive step (T 939/92, OJ EPO 1996, 309)".*

Accordingly, the observed loss of gloss as a result of a car wash treatment would be rather to be taken into account for assessing the presence of an inventive step, i.e. for determining the problem successfully solved over the closest prior art by the claimed coating compositions defined among others by the inequality  $\text{LoG} < 0,18$ .

- 2.4 It is undisputed that all coating compositions defined by the structural features of present claim 1 do not necessarily meet the additional parametric requirements defined in that claim. In accordance with the established jurisprudence of the Boards of Appeal of the EPO, sufficiency of disclosure may however still be acknowledged if a skilled person, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge, is able without undue burden, i.e. with reasonable effort, to identify and prepare within the alternatives covered by the broad structural definition of claim 1 those coating compositions that possess the claimed parametric requirement (Case Law of the Boards of Appeal, 8<sup>th</sup> Edition, 2016, II.C, introduction and II.C. 4.4, in particular decision T 435/91, OJ EPO 1995, 188, Reasons 2.2.1).

This reflects the general legal principle whereby the protection sought must correspond to the technical contribution made by the disclosed invention to the state of the art, which excludes the patent monopoly from being extended to subject-matter which, after reading the patent specification, would still not be at the disposal of the skilled person.

- 2.5 Accordingly, the question to be answered in relation to sufficiency of disclosure is rather the ability for the skilled person to prepare the coating compositions which fulfil the structural requirements of claim 1 and exhibit a tensile storage modulus  $E'$  at  $40^{\circ}\text{C}$ , a width of the glass transition temperature  $\Delta T_g$ , and a cross-link density  $X$  so that the relationship  $\text{LoG} < 0,18$  defined in claim 1 is also met.

*Assessment of sufficiency of disclosure*

*Information provided in the specification*

3. The teaching provided by the patent specification in relation to the achievement of the parametric definition of claim 1 is as far as hydroxyl-functional polyester binders analysed in the following sections.
- 3.1 According to paragraph [0011] of the specification, for making the coating composition, a person skilled in the art has to select from a wide range (underlined by the Board) of available components those components which after curing of the composition will result in a coating having a balanced combination of a) a relatively low  $\Delta T_g$ , b) a relatively high cross-link density parameter  $X$ , and c) a relatively low tensile storage modulus  $E'$  measured at  $40^{\circ}\text{C}$  so as to meet inequality (I) defined in claim 1.
- 3.2 As far as hydroxyl-functional polyester binders are concerned, paragraphs [0073] to [0082] of the specification confirm that the components which can be used for the preparation of said binders can be selected from a very wide range of compounds. They include for the hydroxyl-functional polyester various

categories of compounds, monofunctional carboxylic acids, monofunctional alcohols, hydroxy acids and/or monofunctional epoxy compounds, polycarboxylic acids, polyalcohols and chain extenders being mentioned. Long lists of suitable compounds are also indicated for each of these categories of compounds.

3.3 The same holds true for the cross-linkers reactive with the reactive groups of the binder. Those are defined in paragraphs [0083] to [0089] of the specification. They are indicated to include any usual cross-linkers that comprise functional groups reactive with the hydroxyl groups of the hydroxyl-functional binder. Preferably, the at least one cross-linker is an amino-functional cross-linker or a (blocked) isocyanate-functional cross-linker. It is undisputed that each of these categories of cross-linkers present a wide variety of structures. The amino-functional cross-linkers include condensates of aldehydes, especially formaldehyde, with, for example, urea, melamine, guanamine, and benzoguanamine, which can be partially or fully etherified, whereas the (blocked) isocyanate-functional cross-linker can be selected from a long list of diisocyanate compounds and adducts of polyisocyanate such as biurets, isocyanurates, imino-oxadiazinediones, allophanates, uretdiones.

3.4 The specification apart from the exemplified compositions does not provide the skilled person trying to prepare cured coatings meeting the inequality of claim 1 a set of explicit instructions indicating how to select from the above mentioned available components those and their relative amounts in order to obtain necessarily and immediately coating compositions which fulfill the desiderata defined in claim 1. It is already apparent in view of comparative example 3 of



the patent in suit relating to the use of a hydroxyl-functional polyester binder that the mere use of the monomers recommended in the specification for making that binder and the mere use of one of the amino-functional cross-linkers also recommended in the specification is not sufficient to fulfill the inequality (I) defined in claim 1. It is the appellant's position, as indicated in lines 24-27 of paragraph [0011] of the specification that on the basis of its general understanding of physical properties of chemical compounds, the description of the present invention, and some routine experimentation the skilled person would choose appropriate components and their relative amounts so as to to meet the inequality defined in claim 1.

4. Concerning the teaching provided in paragraph [0011] mentioned in section 3.1 above, the specification does not define what the skilled person would understand by "relatively low"  $\Delta T_g$ , "relatively high" cross-link density parameter X or "relatively low" tensile storage modulus  $E'$  measured at 40°C so that the information provided in paragraph [0011] does not give the skilled person any hint of the  $\Delta T_g$ , the cross-link density parameter X or the tensile storage modulus  $E'$  which should be aimed at.

4.1 For the width of the glass transition temperature, the specification indicates in paragraph [0012], i.e. in the context of the description of a narrow  $\Delta T_g$  that preferably the cured coating has a  $\Delta T_g$  of less than 80°C, more preferably less than 75°C, most preferably less than 65°C. It is even specified that inequality (I) can be met also for cured coatings which exhibit a "relatively broad"  $\Delta T_g$  (e.g. in case of amino resin

cross-linkers leading to significant amount of self-cross-linking).

4.2 Paragraph [0018] of the specification states that for the cross-link density parameter X values of at least 50 kPa/K, preferably 65 kPa/K, more preferably at least 90 kPa/K, even more preferably at least 110 kPa/K, and most preferably at least 150 kPa/K can be aimed at. However, the examples show that it is also contemplated to prepare compositions providing values as low as 48 kPa/K (page 17, Table 1, Example 11 using binder Nr. 10), i.e. below the values taught in paragraph [0018].

4.3 A far as the tensile storage modulus  $E'$  is concerned paragraph [0020] stipulates that the tensile storage modulus  $E'$  can vary in a wide range as long as the condition of formula (I) is met,  $E'$  being preferably chosen below 2.9 GPa, preferably below 2.7 GPa, more preferably below 2.5 GPa, even more preferably below 2.4 GPa, most preferably below 2.3 GPa. The tensile storage modulus preferably is at least 0.2 GPa (paragraph [0020], last sentence). All compositions exemplified in the patent in suit, even the one in accordance with the comparative examples which do not meet the requirement of inequality (I) exhibit a tensile storage modulus  $E'$  within the preferred range, so that no conclusion can be drawn regarding the tensile storage modulus  $E'$  which would be favourable for preparing coating compositions meeting the parametric requirements set out in claim 1.

4.4 Accordingly, the vague statements contained in paragraph [0011] of the patent in suit, even supplemented by other passages providing a general guidance as to which ranges of values are envisaged for these parameters are of a limited assistance to the

skilled person trying to prepare the compositions as claimed. It is already apparent that the key aspect for preparing the coating compositions according to the claimed invention is not to find in a first step a coating composition meeting one of the parametric values  $\Delta T_g$ , cross-link density parameter X or tensile storage modulus  $E'$  measured at 40°C recommended in the specification, which would automatically lead to the LoG value being less than 0,18, but rather to find within the innumerable alternatives covered by the scope for which protection is sought those compositions for which  $\Delta T_g$ , cross-link density parameter X or tensile storage modulus  $E'$  at 40°C lead to a LoG value of less than 0,18.

5. It is in this respect undisputed that variations in respect of one of the parameters cross-link density parameter X, tensile storage modulus  $E'$  at 40°C or  $\Delta T_g$  resulting from a change of composition of the coating composition might also influence the two other parameters, which means that a careful selection of the components of the coating composition is called for. The information contained in the patent in suit as to how the cross-link density X, the tensile storage modulus  $E'$  and the width of the glass transition temperature  $\Delta T_g$  can be varied is analysed as follows:

#### *Cross-link density X*

- 5.1 According to paragraph [0018] a high cross-link density can be achieved by increasing the number of hydroxyl groups. However, for binders having extremely high hydroxyl numbers, it is also required to achieve a high effective cross-linking level, the cross-link efficiency being a measure of the probability for a hydroxyl group on the binder to actually react with the

cross-linker. According to the same paragraph a cross-link efficiency  $E_{XL}$  of at least 0.3 U is preferred, the cross-link efficiency  $E_{XL}$  being defined in paragraph [0033] as the ratio of the cross-link density parameter X to the hydroxyl value (OHv) of the binder. Hence, the definition of the cross-link efficiency which is based itself on the measured cross-link density X is also of no assistance to the skilled person trying to prepare compositions having an adequate cross-link density X as to fulfill the parametric requirement of claim 1.

5.2 According to paragraph [0019] a higher cross-linking efficiency can be achieved when low polar and low Tg parts are present in the coating composition. It is believed that the local mobility in curing hydroxyl-functional binder/cross-linker moiety prolongs the time for the reactive groups on the binder and the cross-linker to find each other and form a covalent bond (cross-link). Another way to increase the cross-link density is by using hydroxyl groups that are easily accessible, i.e. not sterically hindered by neighbouring groups. Therefore, flexible, protruding hydroxyl or cross-linking groups are preferred for obtaining a high cross-link density and a high cross-link efficiency. The patent in suit however does not go beyond these theoretical considerations and does not indicate which compounds are in particular meant, let alone provide any indication on how the result obtained will be quantitatively affected by the selection of these monomers.

5.3 Also according to paragraph [0019], the chemical parameters carbon length (CL), hydroxyl length (OHL), and low polar fraction of low Tg monomers (LPF) can be used to further tune the cross-link density of the cured coating composition to meet the requirement

according to formula (I). However, it is understood in the light of paragraph [0020], [0023],[0024], [0054] and [0057] that only the parameter carbon length (CL) relates to the teaching for the preparation of hydroxyl-functional polyester binders, whereas the parameters hydroxyl length (OHL) and low polar fraction of low Tg monomers (LPF) concern the teaching for the preparation of hydroxyl-functional acrylic binders.

- 5.4 The carbon length (CL) is defined in paragraph [0040] to be the weight fraction on total solids in a car wash-resistant coating composition of all carbon atoms of the binders and cross-linkers present in the form of hydrocarbon moieties containing at least four consecutive carbon atoms in a continuous acyclic alkyl or alkylene chain, as measured across the longest possible path counted per monomer unit and per cross-linker unit.

The parameter CL is expressed as a fraction (i.e. number of 0 to 1). The Carbon Length (CL) can be calculated using  $CL = \sum_i n_i \cdot w_i / M_i$  wherein,  $n_i$  is the number of consecutive carbon atoms according to the definition in monomer or cross-linker (or optionally chain extender),  $w_i$  is the weight fraction of monomer or cross-linker (or optionally chain extender) in the coating composition (binder, cross-linker and optionally chain extender) and  $M_i$  is the molecular weight of the monomer or cross-linker (or optionally chain extender) before polycondensation. It is further specified at the end of paragraph [0040] that "*In the formulas it is defined that all amino-based cross-linkers have zero carbon atoms according to the definition (n = 0)*".

The patent in suit however does not provide any indication as to which values of CL should be aimed at to provide coating composition meeting the inequality of claim 1.

*The tensile storage modulus  $E'$  at 40°C*

5.5 According to paragraph [0020] of the specification, a low value of  $E'$  at 40°C can be achieved by introducing local soft spots in the polymer network. This can be achieved for polyester hydroxyl-functional binders by introducing flexible parts in the main polymer chain, i.e. using monomers with at least three consecutive hydrocarbons in between the functional groups and by introducing a cross-linker that has at least three consecutive hydrocarbons in between the groups reactive with the hydroxyl groups on the hydroxyl-functional binders. As for the cross-link density  $X$ , the patent in suit does not give any indication how these measures would quantitatively affect the tensile storage modulus  $E'$ . It is also indicated that the tensile storage modulus properties can be further tuned by appropriate selection of the carbon length CL for polyester based coating compositions. As already indicated in the last paragraph of above section 5.4, the patent in suit however does not provide any indication as to which values of CL should be aimed at, let alone values which allow to obtain coating compositions meeting the inequality of claim 1.

*The width of the glass transition temperature  $\Delta T_g$*

5.6 As already mentioned in above section 4.1, the  $\Delta T_g$  can be either narrow or broad. A narrow  $\Delta T_g$  is characteristic for coatings with a homogeneous cross-link network, i.e. the network chains between cross-

links are uniform in nature and the cross-links are homogeneously distributed over the cured coating composition (paragraph [0012]). In order to obtain a narrow  $\Delta T_g$  it is preferred that the coating comprises only one cross-link network rather than two co-existing networks. Accordingly, it is also preferred to use binders and cross-linkers that do not provide a significant amount of self-cross-linking in the composition (paragraph [0012]). According to paragraph [0015] a more homogeneous polymer network can be obtained by using extended hydroxyl groups in the hydroxyl-functional binder(s). This can for example be achieved by chain extension, for example by reacting the binder with a chain extender. The teaching of the patent in suit, however, also encompasses coating compositions leading to a "relatively broad"  $\Delta T_g$ , e.g. when amino resin cross-linkers leading to significant amount of self-cross-linking are used. A limitation in respect of the use of one cross-linking network is also not contained in claim 1, which use is also meant to be encompassed by the scope of claim 1. The specification does not provide a further teaching in respect of  $\Delta T_g$ , let alone indication on how this parameter could be quantitatively modified.

*Additional teaching in respect of embodiments employing a hydroxyl-functional polyester binder*

6. In respect of a preferred embodiment of the present invention, namely in case where the at least one hydroxyl-functional binder is a hydroxyl-functional polyester binder and the at least one cross-linker is an amino-functional cross-linker, an isocyanate-functional cross-linker, or a blocked isocyanate-functional cross-linker, the total amount of binder and cross-linker together amounting to at least 90 wt% of

the solids content of the coating composition, the appellant also pointed out that the patent in suit provides additional guidance on how to select the components of the compositions for meeting inequality (I). The appellant referred to paragraph [0023] of the patent in suit and to parameter L1 (described below in section 6.2). According to that passage of the specification the definition of that parameter being below 0,18 accurately corresponds to a low observed loss of gloss of less than 18% (it is reiterated that the observed loss of gloss is not the parameter LoG, see section 2.3 above). Consequently, parameter L1 is indicated to enable the skilled man to select for polyester based coating compositions from the wide variety of possible components those components having the appropriate chemical composition to meet an observed loss of gloss of less than 18%.

- 6.1 The Board observes that example 11 and comparative example 3, the sole coating compositions tested in the patent in suit which relate to a coating composition comprising a hydroxyl-functional polyester binder and an amino-functional cross-linker (a butylated melamine resin) (see Table 1 on pages 17 and 18, paragraphs [0113], [0115], [0119], [0122] and [0103]) do not support the allegation that the L1 value calculated would accurately correspond to the low observed loss of gloss, the observed values for the loss of gloss being of 12% and 28%, for example 11 and comparative example 3, respectively, whereas the corresponding calculated L1 values were 0,16 and 0,26. Considering the further allegation in paragraph [0011] that the calculated LoG value as defined in claim 1 accurately describes the observed loss of gloss as a result of a car wash treatment, the skilled person would nevertheless understand that according to the teaching of the patent



in suit the L1 values calculated would be meant to accurately correspond to the LoG values determined in a DTMA test, which is exactly the case for the two above mentioned example and comparative example.

- 6.2 Parameter L1 which according to the recommendation of the patent in suit should have a value of less than 0,18 is a parameter calculated on the basis of the following formula (II):

$$L1 = A1 + A2.(Mn)^{-1} + A3.CL + A4.MF + A5.NCO + A6.CL.(Mn)^{-1} + A7.(MF)^2 + A8.MF.NCO \text{ (II)},$$

wherein Mn represents the number average molecular weight of all hydroxyl-functional binders in the composition, CL the carbon length, MF the weight fraction of the amino cross-linker on total solids in the coating composition, NCO is defined as the total concentration of NCO groups present in the cured coating composition expressed in mmole NCO groups/g, wherein A1 to A8 are constants indicated in section V above; and wherein the at least one hydroxyl-functional polyester binder has an OHV value between 50 and 350 mg KOH/g.

- 6.3 In case of the sole use of amino-cross-linkers the values NCO is zero, which means that  $L1 = A1 + A2.(Mn)^{-1} + A3.CL + A4.MF + A6.CL.(Mn)^{-1} + A7.(MF)^2$ .

Per definition Mn does not depend on the choice of the cross-linker since it concerns only the number average molecular weight of all hydroxyl-functional binders in the composition. For the calculation of the parameter carbon length CL it is also considered, according to the definition provided in paragraph [0040], that all amino-based cross-linkers have zero carbon atoms

( $n = 0$ ) (second paragraph of above section 5.4). Thus, for the sole use of a hydroxyl-functional polyester binder and an amino-based cross-linker, L1 depends only on the weight fraction of the amino cross-linker on total solids in the coating composition and on the structure of the binder. This means that L1 does not depend on the structure of the amino-based cross-linker, for example on the number of groups available for cross-linking per weight of the amino cross-linker, which characteristics of the cross-linker can obviously broadly vary within the large group of amino cross-linkers envisaged by the teaching of the patent in suit (section 3.3 above). However, as indicated in above sections 4.1 and 5.6,  $\Delta T_g$  depends in particular on the ability of the amino resin to undergo self-cross-linking, which ability obviously depends on the structure of said amino resins which can be broadly varied.

6.4 In addition, the appellant did not provide any technical explanations based on physical or chemical aspects of those coating compositions on the basis of which the Board could conclude that the model relying on the calculation of L1 would retain validity for all coating compositions having the broad structural definition provided in claim 1. They also did not submit empirical evidence, e.g. based on a series of experiments dealing with a broad range of coating systems reflecting the broad structural definition of present claim 1, which empirical evidence despite the absence of technical explanations would render credible that the model based on the calculation of L1 is generally applicable across the broadly defined structural domain of claim 1. In this respect, it is also worth noting that the appellant answering an objection of novelty vis-à-vis a composition

exemplified in a prior art document, which objection was based on a calculation of the L1 value of that composition, argued that L1 correlated with the LoG parameter and enabled to get low LoG values, but was no proof for the LoG value of said exemplified composition (letter of the appellant dated 30 November 2018, pages 13 and 14, section 58).

6.5 Hence, even if to the benefit of the appellant the model based on the calculation of L1 were considered to be accurate within the specific context of the composition described with example 11 and comparative example 3 of the patent in suit, i.e. the sole experimental evidence submitted relating to polyester binders, it would not have been made credible that this model would provide suitable guidance generally applicable to coating compositions comprising any hydroxyl-functional polyester binder with an OHV value between 50 and 350 mg KOH/g and any amino-cross-linker, wherein the total amount of binder and cross-linker together amounts to at least 90 wt% of the solids content of the coating composition.

6.6 As indicated above the sole example and comparative example of the patent in suit in relation to coating compositions comprising hydroxyl-functional polyester binders are example 11 using binder 10 described in paragraph [0114], leading to a LoG value of 0,16, and comparative example 3 using binder 12 described in paragraph [0115] which leads to a LoG value of 0,26. Both coating compositions use the same amino cross-linker. Binder 12 despite being obtained by polymerizing 1,6-hexane diol, trimethylol propane, 2-butyl-2-ethyl-1,3-propane diol and hexahydrophthalic anhydride, whose use is taught in paragraphs [0073] to [0082] of the specification for providing suitable

hydroxyl-functional polyester binders, does not result in a coating having the sought LoG value. This confirms that the key of the present invention is to find the appropriate selection of monomers for the binder and their proportions, which in combination with appropriate amounts of cross-linkers generally known in the art will lead to the sought LoG value. The fact that comparative example 3, contrary to example 11 does not use a binder prepared with a chain extender, which appears to be a particularly preferred embodiment of the present invention as indicated in paragraph [0075] of the specification, is not relevant, since the use of such monomers for making the claimed coating composition is not a feature of present claim 1, so that claim 1 as implicitly confirmed by paragraph [0075] is also directed to coating compositions whose binders are not prepared with such chain extenders.

6.7 Finally, even in the specific context of example 11 and comparative example 3, a comparison of the coating compositions prepared does not provide the skilled person with meaningful information as to which modifications of the binder are favorable to the obtention of a LoG value of less than 0,18 since the binders used in example 11 and comparative example 3 differ not only in the weight ratio between trimethylol propane and 2-butyl-2-ethyl-1,3-propane diol, but also by the use of isononaic acid, 1,4-cyclohexane dicarboxylic acid and  $\epsilon$ -caprolactone instead of 1,6-hexanediol and hexahydrophthalic anhydride.

*Conclusion in respect of the information provided in the specification in relation to the use of a hydroxyl-functional polyester binder*

7. From the teaching provided in the specification it can be concluded that each of the parameters width of the glass transition temperature  $\Delta T_g$ , cross-link density  $X$  and tensile storage modulus  $E'$  at  $40^\circ\text{C}$ , all determined by a single DTMA measurement, depends on the various constituents making the hydroxyl-functional polyester binder(s) and the the cross-linker(s), as well as their proportions. Variations of any of these parameters influence the two others so that they cannot be as a general rule varied independently from each other making a careful selection of the constituents of the hydroxyl-functional polyester binder(s) and of the cross-linker(s), as well as their relative amounts, critical to the achievement of the sought result in terms of the LoG value.

The skilled person is given in respect of the cross-link density  $X$ , the tensile storage modulus  $E'$  at  $40^\circ\text{C}$  and the width of the glass transition temperature  $\Delta T_g$  a teaching which remains theoretical in nature and addresses separately each of these parameters without even indicating for any of those the magnitude of variation to be expected for each of these parameters when possible modifications of the coating composition addressed in the specification are operated. In view of the interdependence of these parameters, to prepare coating compositions over the whole scope intended, the skilled person would rather need to be presented with a global concept or a methodology on how the various types of monomers for the binder or cross-linker and their relative amounts would having regard to the others influence at the same time the cross-link

density  $X$ , the tensile storage modulus  $E'$  and the width of the glass transition temperature  $\Delta T_g$  so as to obtain a LoG value of less than 0,18. Such global concept or methodology was not shown to emerge from the teaching of the patent in suit, let alone indicated by the appellant. Moreover, the model based on the calculation of parameter  $L_1$  as defined by formula (II) has not been shown to be applicable outside of the context of the examples, whereas the patent aims at claiming coating compositions whose structural characteristics are much more broadly defined.

*Common general knowledge*

8. It is undisputed that the definition of the LoG value as defined in claim 1 being less than 0,18 does not belong to the common general knowledge. The appellant did not submit evidence for the existence of a common general knowledge on the basis of which the skilled person could supplement the teaching provided in the patent in suit for selecting the constituents of the hydroxyl-functional polyester binder(s) and of the cross-linker(s), as well as their relative amounts, or could develop a methodology for said selection, so as to achieve with a reasonable amount of effort the sought result in terms of the LoG value.

*Undue burden*

9. The appellant's argument that the skilled person would need only a few experiments to arrive at coating compositions meeting the requirement set out in claim 1 is in the absence of any substantiated facts and corroborating evidence showing that this would be generally the case over the whole scope intended a mere speculation which cannot convince the Board. It lacks

credibility as the need for only a few experiments, for example as to transform occasional failure into success, requires the existence of a known methodology which would first guide the skilled person toward coating compositions meeting the parametric requirements of claim 1. This methodology, however, does not emerge from the patent in suit, as indicated above.

9.1 In the absence of indication of suitable common general knowledge which would allow the skilled person to fill the gap between the teaching of the patent and in suit and that which would be needed to prepare coating compositions over the whole scope for which protection is sought, the skilled person is left for a large part of those coating compositions at best to develop such missing methodology or to find out by trial and error which coating compositions from the innumerable compositions corresponding to the broad structural teaching of the patent in suit meet the parametric conditions set out in claim 1. This amount in both situations to an undue burden for the skilled person.

9.2 As to the appellant's argument that it was up to the opponents to show that the preparation of the coating compositions in accordance with claim 1 amounted to an undue burden for the skilled person, the Board observes that each of the parties to the proceedings carries the burden of proof for the facts it alleges (Case Law, *supra*, III.G.5.1 and III.G.5.2). Who bears the burden of proof may be determined by the legal cases which the respective parties are trying to make. Whether it is discharged or not is assessed by the board based on all the relevant evidence put before it, including the teaching or lack of teaching in the patent in suit in relation to the choice of suitable components and their

relative proportions for preparing coating compositions meeting the parametric requirements of claim 1. In the context of the opposition ground of sufficiency of disclosure, the weight of the submissions required to rebut the legal presumption that the patent meets that requirement of the EPC depends on its strength (T 0063/06 of 24 June 2008, point 3.3.1 of the reasons). A strong presumption requires more substantial submissions than a weak one. In the present case the existence of an undue burden results from the almost infinite number of coating compositions that fall under the structural definition given in claim 1, and the above established absence of a teaching in the patent in suit as to how select in an appropriate and straightforward manner the components of the coating composition so as to meet the unusual parametric requirement of claim 1. As a consequence, the onus of proof to demonstrate that the preparation of the coating compositions over the whole scope for which protection is sought does not necessitate an undue amount of work for the skilled person rested on the patent proprietor (here appellant).

10. Accordingly, the subject-matter of claim 1 lacks sufficiency of disclosure and the ground of opposition under Article 100(b) EPC prejudices the maintenance of the patent as granted. Therefore, the Appellant's main request is to be refused.

*First auxiliary request*

11. Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that the one or more cross-linker reactive with the reactive group of the binder has been specified to be an amino-functional cross-linker, an isocyanate-functional cross-linker, or a blocked



isocyanate-functional cross-linker. This amendment does not result in a significant restriction of the whole group of coating compositions envisaged for claim 1, as that group still encompasses those coatings using an amino-functional cross-linker and a hydroxyl-functional polyester. That restriction also cannot compensate for the lack of a methodology in the patent in suit for appropriately selecting the components of the coating compositions such as to obtain if necessary with a reasonable amount of experimentation the LoG value defined in claim 1. Consequently, the objection under Article 100(b) EPC holds also against the auxiliary request 1 and that request also has to be refused.

*Admittance of auxiliary requests 2 to 5*

12. Auxiliary requests 2 to 5 were submitted less than two weeks before the oral proceedings with letter of 30 November 2018. Therefore their admittance to the proceedings underlies the stipulations of Articles 13(1) and 13(3) RPBA. In this respect, Article 13(1) RPBA specifies that a board in exercising its discretion to admit and consider amendments to a party's case should take into account the current state of the proceedings and the need for procedural economy. One factor to be considered in the exercise of its discretion is therefore whether the newly filed requests can be considered *prima facie* allowable at least in the sense that all previous objections, in the present case the objection under Article 100(b) EPC, have been overcome.

12.1 Despite the modifications introduced into auxiliary requests 2 to 5, the claimed subject-matter is still directed to coating compositions (auxiliary requests 2 to 4) or coatings (auxiliary request 5) based on a

hydroxyl-functional polyester binder and a cross-linker which can be an amino-functional cross-linker. A further condition restricting the definition of the hydroxyl-functional polyester binder when used in combination with an amino-functional cross-linker and/or an isocyanate-functional cross-linker has been added in auxiliary request 3, whereby that condition corresponds to L1 in accordance with formula (II) being less than 0,18.

12.2 Having regard to the central question underlying the issue of sufficiency of disclosure in respect of the main request and auxiliary request 1, i.e. the ability for the skilled person to prepare without undue burden coating compositions over the whole scope for which protection is sought, in particular for coating compositions based on a hydroxyl-functional polyester binder and an amino-functional cross-linker, even with the help of parameter L1 being defined to be less than 0,18, it is not apparent to the Board how the amendments introduced into auxiliary requests 2 to 5 could overcome the objections raised against the main request and the auxiliary request 1. Moreover, considering that the patent in suit contains only one example concerning the use of a hydroxyl-functional polyester binder, the argument submitted by the appellant that auxiliary requests 2 to 4 would define subject-matter closer to the examples of the patent in suit could not convince the Board that these newly filed auxiliary requests 2 to 5 could be considered *prima facie* allowable.

12.3 Accordingly the Board finds it appropriate to exercise its discretion under Article 13(1) RPBA by not admitting auxiliary requests 2 to 5 into the proceedings.

**Order**

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

1. The appeal is dismissed.

The Registrar:

The Chairman:



B. ter Heijden

D. Semino

Decision electronically authenticated