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**Datasheet for the decision  
of 3 June 2025**

**Case Number:** T 0895/23 - 3.3.02

**Application Number:** 13799540.3

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**IPC:** C09J175/00, C08G18/10,  
B32B7/12, B32B21/13, C09J5/02

**Language of the proceedings:** EN

**Title of invention:**

ADHESIVE SYSTEM FOR PREPARING LIGNOCELLULOSIC COMPOSITES

**Patent Proprietor:**

Henkel AG & Co. KGaA  
Henkel IP & Holding GmbH

**Opponents:**

Dynea AS  
Jowat SE

**Headword:**

HENKEL / ADHESIVE SYSTEM / LIGNOCELLULOSIC COMPOSITES

**Relevant legal provisions:**

EPC Art. 56  
RPBA 2020 Art. 12(2), 12(4), 12(6)

**Keyword:**

Main request and auxiliary requests 1 to 3 - filed with  
statement of grounds of appeal - admitted (no)  
Auxiliary request 4 - Inventive step - (no)

**Decisions cited:**

T 0012/07, T 1968/08, T 1045/12

**Catchword:**



**Beschwerdekammern**

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**Chambres de recours**

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**Case Number:** T 0895/23 - 3.3.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.02**  
**of 3 June 2025**

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**Decision under appeal:**

**Decision of the Opposition Division of the  
European Patent Office posted on 13 March 2023  
revoking European patent No. 2928977 pursuant to  
Article 101(3) (b) EPC.**

**Composition of the Board:**

<b>Chairman</b>	M. O. Müller
<b>Members:</b>	M. Maremonti
	B. Burm-Herregodts

## Summary of Facts and Submissions

I. The appeal by the patent proprietors ("appellant") is against the decision of the opposition division to revoke European patent No. 2 928 977 ("the patent").

II. Claim 1 as granted reads as follows:

*"1. An adhesive system for preparing lignocellulosic composites comprising:*

*a) an aqueous primer composition; and,*

*b) a polyurethane adhesive composition,*

*wherein said aqueous primer composition comprises:*

*up to 10 wt.%, by weight of the composition, of surfactant selected from the group consisting of water-soluble surfactants, water emulsifiable surfactants and mixtures thereof; and,*

*from 0 to 25 wt.%, by weight of the composition, of polyol selected from the group consisting of water-soluble polyols, water dispersible polyols, water emulsifiable polyols and mixtures thereof, wherein said polyols have a molecular weight less than 5000 daltons,*

*with the proviso that the aqueous primer composition must comprise at least one of said polyol or a surfactant having hydroxyl functionality and a molecular weight less than 5000 daltons,*

*wherein said surfactant of the primer composition is selected from the group consisting of: siloxanebased [sic] surfactants; alkyl polyglucosides; alkoxyated fatty acids; alkoxyated alcohols; alkylsufosuccinates*

[sic]; acetylenic diols; and, mixtures thereof and wherein said polyurethane adhesive composition is a moisture-curable, one-component polyurethane adhesive composition and

wherein the one-component polyurethane adhesive composition comprises:

a prepolymer having free NCO groups, said prepolymer being obtainable from at least one component A comprising a compound reactive toward isocyanates and at least one component B comprising an isocyanate;

from 0 to 40% by weight of filler;

from 0 to 20% by weight of customary additives and assistants; and

from 0 to 20% by weight of an activator;

wherein said prepolymer having free NCO groups being characterized by:

i) an NCO content of from 5 to 30%, preferably from 10 to 25% by weight, based on the prepolymer;

ii) a functionality of from 2.2 to 3, preferably from 2.4 to 2.9; and,

iii) a viscosity at 20°C of from 300 to 35,000 mPas, preferably from 1000 to 10,000 mPas."

III. Two oppositions were filed, invoking the grounds under Article 100(a) to (c) EPC. Reference was made to the following documents, *inter alia*:

D3: WO 03/093385 A2

D7: US 8,128,748 B2

D8: US 2009/0053411 A1

D10: US 2007/0187028 A1

D12: US 2008/0283425 A1

D14: US 2008/0245271 A1

D50: US 4,898,776

D51: Experimental report filed by the appellant by  
letter dated 5 December 2022

IV. During the proceedings before the opposition division, the appellant filed experimental report D51 and sets of amended claims as its main request and auxiliary requests 1 to 3. During the oral proceedings, it made auxiliary request 3 its auxiliary request 6 and filed further sets of claims as auxiliary requests 3 to 5, 7 and 8. The opposition division's conclusions in its decision included the following.

- Document D51 was not admitted.
- Neither the main request nor auxiliary requests 1, 2 and 7 complied with Rule 80 EPC.
- The subject-matter of claim 1 of auxiliary requests 3 to 6 infringed Article 123(2) EPC.
- The subject-matter of claim 1 of auxiliary request 8 did not involve an inventive step in view of D3 as the closest prior art.

V. With its statement of grounds of appeal, the appellant filed new sets of claims of a new main request and new auxiliary requests 1 to 3. Additionally, it re-filed the set of claims of auxiliary request 8 underlying the appealed decision, which was renamed as auxiliary request 4. The appellant argued, *inter alia*, that the claimed subject-matter involved an inventive step. It corroborated its arguments by filing the following new document (labelled D53 by the appellant; new numeration introduced by the board):

A53: WO 2014/160905 A1

- VI. In their appeal submissions, opponents 1 and 2 ("the respondents") contested the admittance of the new main request and auxiliary requests 1 to 4 and argued, *inter alia*, that the claimed subject-matter lacked an inventive step.
- VII. The parties were summoned to oral proceedings as per their requests. In preparation for the oral proceedings, the board issued a communication under Article 15(1) RPBA. In this communication, the board expressed, *inter alia*, its preliminary opinion that the pending main request and auxiliary requests 1 to 3 should not be admitted and that claim 1 of auxiliary request 4 did not involve an inventive step.
- VIII. Oral proceedings before the board were held on 3 June 2025 in the presence of all parties.
- IX. Final requests relevant to the decision
- The appellant requested that the main request and auxiliary requests 1 to 3 be admitted and that the case be remitted to the opposition division for further prosecution. Alternatively, the appellant requested that the appealed decision be set aside and that the patent be maintained in amended form on the basis of the claims of the main request, or, alternatively, on the basis of one of auxiliary requests 1 to 4 as filed with the statement of grounds of appeal, wherein auxiliary request 4 corresponded to auxiliary request 8 underlying the appealed decision.
- Both respondents requested that neither the main request nor auxiliary requests 1 to 3 be admitted and that the appeal be dismissed. Respondent 2 further requested that auxiliary request 4 not be admitted.



- X. As regards the parties' submissions that are relevant to the decision, reference is made to these in the reasons for the decision set out below.

## Reasons for the Decision

Main request and auxiliary requests 1 to 3 - admittance into the proceedings - Article 12(4) and (6) RPBA

1. The sets of claims of the main request and auxiliary requests 1 to 3 were filed by the appellant for the first time with its statement of grounds of appeal.

Main request

- 1.1 Claim 1 of the main request differs from claim 1 as granted (point II. above) in that the polyol of the primer composition is further defined as being  
*"selected from the group consisting of:*

- (i) ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, dipropylene glycol, 1,2-butanediol, 1,3-butanediol, 1,4-butanediol or tetramethylene glycol, 2,3 butanediol, 1,4-hexanediol, pentamethylene glycol, hexamethylene glycol, neopentyl glycol, hexylene glycol, pentaerythritol, dis-pentaerythritol, trimethylol propane;*
- (ii) polyalkylene glycols having the formula  $HO(CH_2CH_2O)_nH$  or  $HO(CH_2CH_2CH_2O)_nH$  wherein  $n$  is a positive integer of from 2 to 30;*
- (iii) glycol esters of fatty acids;*
- (iv) amine polyols;*

- (v) *oligosaccharides and acid, acid salt, fatty acid, alcohol, alkyl and amine derivatives of said oligosaccharides; and*
- (vi) *polyols selected from mannitol, sorbitol, xylitol, glycerol, glucose, fructose, maltose, lactose, tagatose, psicose, galactose, xylose, allose, ribose, arabinose, rhamnose, mannose, altrose, ribopyranose, arabinopyranose, glucopyranose, gulopyranose, galatopyranose, psicopyranose, allofuranose, gulofuranose, galatofuranose, glucosamine, chondrosamine, galactosamine, ethyl-hexo glucoside, methyl-hexo glucoside, aldaric acid, sodium aldarate, glucaric acid, sodium glucarate, gluconic acid, sodium gluconate, glucoheptonic acid, sodium glucoheptonate and derivatives and mixtures thereof".*

Auxiliary request 1

- 1.2 Claim 1 of auxiliary request 1 differs from claim 1 as granted (point II. above) in that "*siloxane-based surfactants*" and "*alkoxylated fatty acids*" have been deleted from the list of surfactants and the polyol of the primer composition is further defined as being "*selected from the group consisting of:*

- (i) *polyalkylene glycols having the formula  $HO(CH_2CH_2O)_nH$  or  $HO(CH_2CH_2CH_2O)_nH$  wherein  $n$  is a positive integer of from 2 to 30;*
- (ii) *glycol esters of lauric, palmitic, stearic and myristic acid; and*
- (iii) *the group consisting of alkyl glucosides, alkyl polyglucosides, alkyl glucosamides,*

*alkyl glucosamines, alkyl sorbitans, alkyl sorbitols, alkyl glucopyranosides, alkyl maltosides, alkyl glycerols, and mixtures thereof".*

Auxiliary request 2

- 1.3 Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that the selection of the polyol is restricted to groups (i) and (ii) above.

Auxiliary request 3

- 1.4 Claim 1 of auxiliary request 3 differs from claim 1 as granted (point II. above) in that
- the concentration of the polyol has been amended from "*0 to 25 wt.%*" to "*0.1 to 5 wt.%*",
  - "*siloxane-based surfactants*" and "*alkoxylated fatty acids*" have been deleted from the list of surfactants, and
  - the polyol of the primer composition is defined as "*an ethoxylated (20) sorbitan ester based on lauric acid having an average hydroxyl value of 100 mg KOH/g and an HLB of 16.7*".
2. The respondents requested that neither the main request nor auxiliary requests 1 to 3 be admitted.
- 2.1 According to Article 12(2) RPBA, the primary object of the appeal proceedings is to review the decision under appeal in a judicial manner. Therefore, a party's case shall be directed to, *inter alia*, the claim requests on which the decision under appeal is based.
- 2.2 Under Article 12(4) RPBA, any part of the party's appeal case not meeting this requirement is to be regarded as an amendment. The party concerned should provide its reasons for submitting the amendment in the appeal proceedings. Amendments may be admitted only at

the board's discretion, which is to be exercised in view of, *inter alia*, the complexity of the amendment and the need for procedural economy.

- 2.3 Moreover, under Article 12(6) RPBA the board should not admit, *inter alia*, claim requests which should have been submitted before the opposition division.
- 2.4 It is undisputed that the current main request and auxiliary requests 1 to 3 were not among the claim requests underlying the appealed decision. Their filing with the statement of grounds of appeal is therefore an amendment to the appellant's case within the meaning of Article 12(4) RPBA, which can be admitted only at the board's discretion.
- 2.5 The appellant argued that the main request and auxiliary requests 1 to 3 were filed with its statement of grounds of appeal in direct reaction to the objection under Article 123(2) EPC that had been raised by the opposition division for the first time under item 3.2 of the appealed decision. This objection had not been discussed during the oral proceedings. The statement of grounds of appeal thus represented the first opportunity for the appellant to properly respond thereto. The appellant further stated that the new claim requests had been filed "*in order to prevent misinterpretations and improve intelligibility*". Moreover, the amendments made aimed to overcome the objections raised under Article 123(2) EPC in the appealed decision and also to prevent any further objections under Article 123(2) EPC. The amendments restricted the claimed adhesive system in terms of the required polyol, thus coming closer to the embodiments for which a technical effect had been demonstrated, and thereby supported the presence of an inventive step. Furthermore, the amendments were not complex, not surprising to the other parties and, hence, not

detrimental to procedural economy. Thus, according to the appellant, these requests should be admitted.

3. The board has decided not to admit the main request or auxiliary requests 1 to 3 into the proceedings for the following reasons.
- 3.1 Under item 3.2 of the appealed decision (pages 7 to 9), the opposition division raised an objection under Article 123(2) EPC against claim 1 of the version of auxiliary request 3 pending at that time, which had been filed for the first time at the oral proceedings. The opposition division noted (appealed decision, page 8) that claim 1 of this auxiliary request 3 had restricted the polyols to representatives of the polyols disclosed in paragraphs [0050] to [0054] of the patent (these paragraphs are identical to the passage on page 12, line 4, to page 13, line 8, of the application as filed) as well as to mixtures of these polyols. The opposition division held that the expression "mixtures thereof" was disclosed in the application as filed only with reference to specific groups of polyols and not to all of the polyols disclosed in the aforementioned passage of the application as filed and defined in claim 1 of the version of auxiliary request 3 pending at that time. The opposition division thus concluded that the claimed subject-matter extended beyond the content of the application as filed. The opposition division (appealed decision, page 9, point 4) raised the same objection against claim 1 of auxiliary requests 4 to 6; auxiliary requests 4 and 5 had also been filed for the first time at the oral proceedings.
- 3.2 The board further notes that the same objection to the expression "mixtures thereof" with reference to the list of polyols, as present in claim 1 of the version of auxiliary request 3 pending at that time, had been

raised by respondent/opponent 2 during the oral proceedings (see the minutes of the oral proceedings before the opposition division, page 3, point 7.2, second paragraph).

- 3.3 Therefore, contrary to the appellant's argument, the objection contained under item 3.2 of the appealed decision was not mentioned for the first time in the appealed decision but was in fact based on a corresponding objection of respondent 2 that had been discussed during the oral proceedings.
- 3.4 Moreover, the appellant had reacted to this objection at the oral proceedings by filing further auxiliary requests, i.e. auxiliary requests 7 and 8, which were found by the opposition division to comply with Article 123(2) EPC (minutes of the oral proceedings before the opposition division, page 6, first and second paragraphs; appealed decision, page 13, last paragraph).
- 3.5 In addition, the following is of relevance. During the opposition proceedings, namely by letter dated 5 December 2022, i.e. before the final date set by the opposition division under Rule 116 EPC, the appellant filed sets of claims according to a main request and auxiliary requests 1 to 3. At the oral proceedings, the appellant made this auxiliary request 3 its auxiliary request 6. It additionally filed sets of claims of auxiliary requests 3 to 5, 7 and 8 (minutes of the oral proceedings, points 7, 8 and 9). None of these claim requests was found allowable by the opposition division.
- 3.6 The mere fact that the opposition division, having examined the requests on file, came to the conclusion that none of the requests was allowable is not a valid justification for filing new claim requests for the

first time in the appeal proceedings. This is especially true in view of the fact that the claim requests objected to by the opposition division had been filed either before the final date set under Rule 116 EPC or for the first time at the oral proceedings. In such a situation, it is quite normal for the opposition division to raise objections against such late-filed requests at the oral proceedings. However, this cannot justify the filing of new claim requests on appeal in response to such objections raised at the oral proceedings. Otherwise, a patent proprietor would always be able to file claim requests late in the proceedings before the opposition division and if these requests are not found allowable at the oral proceedings, they would be able to file additional claim requests on appeal to rebut the objections raised and to have these requests automatically admitted by the board. If this were the case, no discretion would be available to the board, contrary to the above-mentioned provisions of Article 12(4) RPBA. Moreover, in view of the above-mentioned requirement of Article 12(2) RPBA, the appeal proceedings should not be used by the parties as a continuation of the proceedings before the opposition division.

- 3.7 At the oral proceedings before the board, the appellant further stated that in claim 1 of current auxiliary requests 1 to 3 the list of surfactants had been restricted. This amendment addressed the objection raised by the board under points 5.5 and 5.6 of the communication issued under Article 15(1) RPBA.

However, auxiliary requests 1 to 3 were filed for the first time with the statement of grounds of appeal. Therefore, they cannot represent a reaction to an objection against these new requests raised by the board in its subsequent communication under

Article 15(1) RPBA. In fact, in contrast to the appellant's view, it was the objection of the board that was triggered by these new claim requests and not the other way round.

- 3.8 The appellant further argued that the amendments contained in the main request and in auxiliary requests 1 to 3 were not complex, nor surprising, and thus their admittance did not affect procedural economy. On the contrary, they prevented misinterpretations and improved intelligibility.

However, the respondents raised objections under, *inter alia*, Article 123(2) EPC, Article 84 EPC, Article 83 EPC, Article 54 EPC, Article 56 EPC and Rule 80 EPC against the subject-matter of claim 1 of the main request and auxiliary requests 1 to 3. Therefore, would these requests have been admitted, all these new issues would have had to be addressed for the first time in the appeal proceedings. Just how complex these issues were became apparent during the oral proceedings before the board. After the board had set out its provisional view that its conclusion that auxiliary request 4 lacked an inventive step also appeared to apply to the main request and auxiliary requests 1 to 3, the discussion with the parties revealed that complex issues had to be considered, in particular whether the specific polyols defined in claim 1 of those claim requests were rendered obvious by the secondary documents cited by the respondents. The admittance of these claim requests and the resulting need for discussion would have thus raised complex issues, and thereby would have been detrimental to procedural economy (Article 12(4) RPBA) and contrary to the primary object of the appeal proceedings as stated above (Article 12(2) RPBA).



- 3.9 Furthermore, as already mentioned, the appellant had ample opportunity to file claim requests before the opposition division and indeed did file a main request and eight auxiliary requests. No reasons are apparent as to why the current main request and auxiliary requests 1 to 3 were not among these. By not filing these requests before the opposition division, the appellant has avoided a decision of the opposition division on these requests. The board holds that the current main request and auxiliary requests 1 to 3 could and should have been filed before the opposition division (Article 12(6) RPBA).
4. For these reasons, the board has not admitted the main request or auxiliary requests 1 to 3 into the appeal proceedings, pursuant to Article 12(4) and (6) RPBA.
5. In view of this decision, the appellant's request that the case be remitted to the opposition division for further prosecution on the basis of the main request or one of auxiliary requests 1 to 3 has been rendered moot and a decision by the board on this request is not needed.

Auxiliary request 4 (auxiliary request 8 underlying the appealed decision) - claim 1 - inventive step under Article 56 EPC

6. Respondent 2 requested that auxiliary request 4 not be admitted. At the oral proceedings, the board rejected this request and decided that auxiliary request 4 is to form part of the appeal proceedings. However, since the final decision is in the respondents' favour, no reasoning by the board for rejecting respondent 2's request is needed.

7. Closest prior art

- 7.1 In accordance with the appealed decision (point 6.6.2 on page 21), the parties argued on inventive step in view of, *inter alia*, document D3 as the closest prior art. In view of the disclosure in D3, the board has no reason to take a different stance.
- 7.2 D3 discloses (page 3, lines 8 to 14) polyisocyanate-based adhesive systems suitable for making high-quality bonded lignocellulosic composites, especially meeting the requirements of ASTM D-2259, a standard also referred to in the patent (see, *inter alia*, paragraph [0015]). According to D3 (page 23, lines 10 to 25), the adhesive system comprises a polyisocyanate composition and also an aqueous primer composition. The latter preferably contains polyvinyl alcohol (PVA) (page 24, lines 12 to 14). According to page 24, lines 27 to 32, and the paragraph bridging pages 37 and 38 of D3, the additional use of the primer composition improves bond strength.
- 7.3 In line with the appealed decision (point 6.6.3, page 23), the parties referred, in particular, to example 7 of D3 as the starting point for the assessment of inventive step. Example 7 of D3 (pages 46 to 48) discloses adhesive systems (table A on page 47), comprising, *inter alia*, an aqueous primer composition containing 1% PVA and the commercial adhesive LINESTAR® 4800. It is common ground that the commercial adhesive LINESTAR® 4800 as used in example 7 of D3 is a polyurethane composition as required by claim 1 of auxiliary request 4.

8. Distinguishing features

It is common ground that the subject-matter of claim 1 of auxiliary request 4 differs from example 7 of D3 in that the primer composition comprises a surfactant and/

or a polyol as defined in the claim, i.e. a surfactant "selected from the group consisting of; [sic] alkyl polyglucosides; alkoxyated alcohols; alkylsulfosuccinates; acetylenic diols; and, mixtures thereof" and/or a polyol "selected from the group consisting of: alkyl glucosides; alkyl polyglucosides; alkyl glucosamides; alkyl glucosamines; alkyl sorbitans; alkyl sorbitols; alkyl glucopyranosides; alkyl maltosides; alkyl glycerols; and mixtures thereof", whereby at least one of said surfactants or polyols has a molecular weight of less than 5 000 daltons.

9. Objective technical problem

- 9.1 The appellant referred to D51, which reports in table 1 the results in terms of percentage of delamination as obtained with adhesive systems comprising the same commercial polyurethane compound (LOCTITE HB S109 PURBOND) in combination with four different primer compositions. The adhesive system comprising a primer composition containing Tween 20 was in accordance with claim 1 of auxiliary request 4. Indeed, Tween 20 was an alkoxyated alcohol, i.e. a surfactant according to claim 1, or, alternatively, an alkyl sorbitan, i.e. a polyol as claimed, as confirmed by document A53, pages 6 and 7. In contrast thereto, the system with a primer composition containing PVA (last row in table 1 of D51) was representative of example 7 of D3. The results showed that the system according to claim 1 performed much better, expressed by a lower percentage of delamination, in comparison with the primer composition containing PVA. The appellant admitted that the PVA concentration used in D51 (8%) was higher than in example 7 of D3 (1%). However, it argued that this difference did not play any role in the demonstration of the technical effect

achieved by the claimed adhesive system over D3. Indeed, the surfactant concentration of 8% was still within the general range of 0.05% to 10% as disclosed in, for example, examples 2 and 4 of D3. Moreover, the weight ratio between primer and polyurethane compound as applied in D3 was in the same order of magnitude as in D51, i.e. a ratio of 1 in D3 and a ratio of 1.5 in D51. The appellant thus formulated the objective technical problem as being the provision of an adhesive system providing improved adhesive properties for lignocellulosic composites.

9.2 These arguments are not convincing.

9.2.1 The respondents disputed that Tween 20 was a surfactant or a polyol according to claim 1 of auxiliary request 4. However, even if it were accepted that the experiment in D51 with a primer composition containing Tween 20 was in accordance with claim 1 of auxiliary request 4, the board still shares the respondents' view that D51 does not contain any valid comparison with example 7 of D3. In fact, the experiment carried out in D51 with PVA, i.e. the surfactant used in example 7 of D3, was performed with a primer composition containing 8% PVA. In contrast thereto, example 7 of D3 was conducted with an adhesive system containing a 1% PVA primer composition.

9.2.2 The appellant's argument that the change from 1% to 8% PVA does not affect the results is not corroborated by any evidence and thus amounts to mere speculation. Examples 2 and 4 of D3 (pages 36 to 37 and 39 to 43) cannot support this argument either since they were carried out with a primer composition containing urea, not PVA. As regards the allegedly similar weight ratio between the primer and the polyurethane compound in example 7 of D3 and D51, the board could not find any reference to such a ratio in D51. In fact, the latter

does not mention the amount of polyurethane compound that was used. When asked by the board at the oral proceedings, the appellant could not find any reference to such an amount in D51 either. Therefore, this argument of the appellant was not substantiated.

9.2.3 Moreover, as submitted by the respondents, and this was not contested by the appellant, D3 discloses on page 24, lines 18 to 23, that both the amount and concentration of the primer compound are optimised in order to provide adhesive bonds that meet all of the requirements of ASTM D-2259. Hence, the concentration of the primer matters for the adhesive properties, and therefore the composition of example 7 of D3 with 1% PVA must be assumed to have adhesive properties that are substantially different from the composition of D51 with an amount of PVA as high as 8%.

9.3 Thus, the board concurs with the respondents' view that no technical effect has been shown to be associated with the above-mentioned distinguishing feature. In line with the respondents' submissions, the objective technical problem must therefore be formulated as the provision of an alternative adhesive system.

10. Obviousness of the claimed solution

10.1 The appellant argued that even if the objective technical problem was formulated as the provision of an alternative adhesive system, the claimed subject-matter was still inventive.

10.1.1 It submitted that D3 disclosed the use of primer compositions as being optional. Indeed, according to page 7, lines 11 to 14, of D3, it was particularly preferred that the adhesive system essentially consisted of a one-component polyurethane-based adhesive with no primer being required. Disadvantages associated with the application of various known primer

substances were outlined in the introductory part of D3. Thus, the skilled person would have been unlikely to arbitrarily replace the adhesion-promoting substances disclosed in D3. Moreover, if a primer was used, D3 disclosed the use of surface-treatment compositions based on urea.

- 10.1.2 The appellant additionally contested the reasoning of the opposition division using D50 as a secondary document. It argued that D3 and D50 addressed different technical problems: meeting all of the requirements of ASTM D-2559 in D3 vs. minimising unwanted adhesion to the platens used in producing the board in D50. The adhesive systems were also different: while D3 used a one-component polyurethane composition, D50 disclosed a binder comprising a combination of polyisocyanate and a reactive hydrogen-containing compound in the form of a polyol (two-component polyurethane-based adhesive); this binder further contained a surfactant. Moreover, the processes for achieving the bond were different: D3 described a surface treatment with the primer composition before applying the polyurethane composition, followed by cold-curing; while D50 disclosed instead that the primer ("surface treatment solution" in D50) and polyurethane adhesive composition were premixed and then applied to the lignocellulosic substrate by hot pressing. Thus, the teaching of D3 and D50 were incompatible with each other. A combination of D50 with D3 would have resulted in the aqueous primer composition disclosed in D3 being replaced by a non-aqueous adhesive system comprising both polyurethane and surfactant as disclosed in D50.
- 10.1.3 According to the appellant, the teaching of D3 was also incompatible with that of each of D7, D8, D12 and D14, all of which were cited by the respondents as possible secondary documents. Indeed, all these documents

addressed a different technical problem as compared with D3 and concerned two-component adhesion primer compositions tested in conjunction with glass/ceramic surfaces. The primer and substrate strongly interacted with each other. Hence, the skilled person would not have replaced a primer used on wood as in the closest prior art D3 with a primer used on glass/ceramic substrates. No incentive to do so was contained in any of D7, D8, D12 or D14. The appellant further submitted that the aqueous primer compositions of D7 and D8 were based on organoalkoxysilane and the primer compositions of D12 and D14 on organosilicone compounds, organotitanium compounds and organozirconium compounds. None of these compounds were encompassed by the definition of the polyols in claim 1 of auxiliary request 4. Hence, even when combining D3 with these secondary documents, the skilled person would not have arrived at the claimed invention.

10.2 These arguments are not convincing.

10.2.1 When the objective technical problem lies in the provision of an alternative, no pointer or incentive is required. It is sufficient that the skilled person would have considered the claimed solution to be a reasonable alternative to the adhesive system of the closest prior art (see T 1968/08, reasons, point 5.5; T 12/07, reasons, point 4.1.6; T 1045/12, reasons, point 4.7.7).

10.2.2 Irrespective of this, the disadvantages described in the introduction of D3 as being linked to the use of primer compositions, which the appellant referred to, are, in fact, disclosed in D3 as only being associated with particular primers, namely organofunctional silanes (see page 2, lines 4 to 15). As a matter of fact, D3 teaches that the use of a primer composition in addition to the polyurethane composition improves

bond strength (page 24, lines 27 to 32; paragraph bridging pages 37 and 38).

- 10.2.3 Additionally, as submitted by the respondents, D3 teaches on page 24 (see lines 7 to 18) that besides solutions of PVA and urea, many different types of primer compositions may be used, provided that they work in combination with the polyurethane composition of D3, containing a prepolymer with free NCO groups. The skilled person trying to find an alternative adhesive system and starting from D3 would thus have looked for different primers.
- 10.2.4 It is common ground that each of D7 (table 2 in column 20; table 8 in columns 22 to 23; tables 11 and 12 in column 25; column 23, lines 14 to 26; column 24, lines 59 to 62), D8 (tables 6 and 7 on page 7; paragraph [0071]), D10 (table 4 on page 6; paragraphs [0072], [0073], [0090], [0092]), D12 (table 1 on page 7; paragraph [0102]) and D14 (table 1 on page 8; paragraph [0094]) discloses an adhesive system comprising an aqueous primer composition and a one-component polyurethane composition comprising a prepolymer with free NCO groups, whereby the aqueous primer composition comprises an alkoxylated alcohol, i.e. a surfactant as required by claim 1 of auxiliary request 4. In fact, this conclusion by the opposition division (appealed decision, pages 18 to 19) was not disputed by the appellant.
- 10.2.5 On the basis of this teaching, the skilled person would have regarded a primer composition containing an alkoxylated alcohol as disclosed in each of D7, D8, D10, D12 and D14 to be a reasonable alternative to the PVA-containing primer composition of example 7 of D3 and would thereby have arrived at the subject-matter of claim 1 of auxiliary request 4. The fact that the primer compositions of each of D7, D8, D10, D12 and D14



also contain polyols, e.g. organoalkoxysilanes, which are not mentioned in claim 1 of auxiliary request 4, has no bearing on this conclusion since an alkoxyated alcohol is also included in the primer compositions disclosed in these documents.

- 10.2.6 The fact that the adhesive systems of each of D7, D8, D10, D12 and D14 were used to bind glass/ceramic surfaces is not relevant either. In fact, as submitted by the respondents, at least D7, D10, D12 and D14 disclose the possible application of the disclosed adhesive systems on a number of different materials, including wood (see D7: column 19, lines 5 to 8; D10: paragraph [0042]; D12: paragraph [0093]; D14: paragraph [0085]).
- 10.2.7 Moreover, D50 discloses (column 1, lines 10 to 14; column 2, lines 29 to 57) an adhesive system for bonding lignocellulosic materials, comprising a binder containing a prepolymer with free NCO groups (polyisocyanate) and a polyol. According to D50 (column 3, lines 25 to 29), the adhesive system further comprises a surfactant, compatible with the isocyanate component, which is described as being capable of improving the wetting characteristics of the system. Among the surfactants, ethoxylated alcohols with a molecular weight below 5 000 g/mol, i.e. surfactants as required by claim 1 of auxiliary request 4, are especially preferred (column 4, lines 3 to 64).
- 10.2.8 Also on the basis of this teaching, the skilled person would have considered a primer composition containing an ethoxylated alcohol as disclosed in D50 to be a reasonable alternative to the PVA-containing primer composition of example 7 of D3.
- 10.2.9 The fact invoked by the appellant that according to D50 the surfactant is premixed with the polyisocyanate

before being applied to the lignocellulosic material does not make the teaching of D50 incompatible with that of D3. In fact, as pointed out by the respondents, such a premixing is also disclosed in D3 (page 23, lines 25 to 29) as a possible alternative to a separate application.

10.3 Therefore, the board has concluded that the subject-matter of claim 1 of auxiliary request 4 does not involve an inventive step when starting from D3 as the closest prior art (Article 56 EPC). Hence, auxiliary request 4 is not allowable.

10.4 The respondents requested that D51 and A53 not be admitted. However, since the above conclusion that auxiliary request 4 lacks an inventive step has been reached by the board by taking D51 and A53 into account, a decision by the board on this request is not needed.

#### Conclusion

11. None of the appellant's requests is admissible and allowable.

## Order

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

The appeal is dismissed.

The Registrar:

The Chairman:



U. Bultmann

M. O. Müller

Decision electronically authenticated