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**Datasheet for the decision
of 5 October 2017**

Case Number: T 1407/13 - 3.3.09

Application Number: 98303182.4

Publication Number: 0875374

IPC: B32B27/36, C08J5/18

Language of the proceedings: EN

Title of invention:
Decorative laminated sheet

Patent Proprietor:
Riken Technos Corporation

Opponents:
Renolit SE
Klöckner Pentaplast GmbH
Eastman Chemical Company

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:



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Case Number: T 1407/13 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 5 October 2017

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
16 April 2013 maintaining European patent
No. 0875374 in amended form.

Composition of the Board:

Chairman W. Sieber
Members: J. Jardón Álvarez
E. Kossonakou

Summary of Facts and Submissions

I. This decision concerns the appeals filed by opponents 01 and 02 against the interlocutory decision of the opposition division that European patent No. 0 875 374, as amended, met the requirements of the EPC.

II. Three opponents had requested revocation of the patent in its entirety on the grounds of Article 100(a) EPC (lack of novelty and lack of inventive step).

The documents cited during the opposition proceedings included:

E1: US 5 643 666 A;

E5: US 4 765 999 A;

E9: US 5 026 448 A;

E10: US 5 215 826 A; and

E12: JP 05177788 A; abstract and English machine translation.

III. The set of claims maintained by the opposition division, filed as auxiliary request 2 on 6 March 2013 during the oral proceedings, comprised two claims. Claim 1 read as follows:

"1. Use for membrane press molding of a decorative laminated sheet sequentially comprising:

(A) a layer of completely amorphous polyester type resin manufactured by using a dicarboxylic acid and

diol components wherein the dicarboxylic acid is terephthalic acid and the diol components are 60 to 80 mol% of ethylene glycol and 20 to 40 mol% of 1,4-cyclohexane dimethanol; and

(B) a substrate layer composed of PET."

Claim 2 was a dependent claim.

IV. The opposition division's finding on the allowed request can be summarised as follows:

- The amendments made fulfilled the requirements of Article 123(2) and (3) EPC;
- The claimed subject-matter was novel over the disclosure of documents E1 and E5 because these documents merely referred to thermoforming in general but not to the specific use for membrane press moulding now claimed.
- Concerning inventive step, the opponents had argued that E9 or E10 could be seen as the closest prior-art document and that the claimed subject-matter was obvious from a combination of either E9 or E10 with E1. The opposition division saw E9 as the closest prior art, since it related to thermoformable sheet materials and in particular to processes involving vacuum thermoforming. However, neither E9 nor any of the other cited documents disclosed membrane press moulding. It concluded that none of the documents (alone or in combination) would provide an incentive for the skilled person to use the layers mentioned in claim 1 for membrane press moulding of a decorative laminated sheet.

V. Appeals against this decision were filed by opponents 01 and 02 (in the following: appellant 01 and appellant 02), who in their respective statements setting out the grounds of appeal requested that the patent be revoked in its entirety and filed the following new documents:

E19:"Produktinformation PEGUTOP-PET", Tarkett Folien GmbH; 30 May 1997, (3 pages);

E20: US 5 628 853 A; and

E21:"Polyurethan-Dispersions-Manual. Hinweise für die Verarbeitung von JOWAPUR[®]-Dispersionen", Jowat Lobers u. Frank GmbH & Co KG, July 1997 (5 pages).

VI. By letter dated 6 December 2013, appellant 02 filed the following further document:

E22:"[®]HostaPETPF17 Möbelfolie für 3D-Anwendungen" Hoechst Aktiengesellschaft, May 1995 (2 pages).

VII. With its reply dated 4 February 2014 the patent proprietor (in the following: the respondent) requested that the appeals be dismissed and that documents E19 to E22 not be admitted into the proceedings. The respondent's submissions also included the following documents:

E23: JPU3030051 (including a machine translation into English. A human translation was filed on 12 February 2014);

E24: Klöckner pentaplast, company history, retrieved from the internet: http://www.kpfilms.com/en/about/pdfs/kp_history_timeline_7.15.13.pdf (1 page).

VIII. In a communication dated 23 February 2017, the board indicated the points to be discussed during the oral proceedings.

IX. Further submissions were filed by the respondent on 24 August 2017 and by appellant 02 on 5 September 2017. The submissions of the respondent included three auxiliary requests, and the submissions of appellant 02 the following document:

E25: Data sheet concerning PVC resins available from Shin-Etsu Chemical Co., Ltd. (1 page, undated).

X. Opponent 03 (party as of right) did not file any submissions or requests during the appeal proceedings, nor did it attend the oral proceedings.

XI. On 5 October 2017 oral proceedings were held before the board. During the oral proceedings the appellants did not rely on documents E19 to E22, so the board did not need to decide on the admission of these documents.

XII. The arguments of the appellants, insofar as they are relevant for the present decision, may be summarised as follows:

- The claimed subject-matter lacked inventive step starting from E1 as the closest prior art. It differed from the teaching of E1 merely by the indicated use for membrane press moulding, while the laminated sheet of E1 was said to be

thermoformable according to methods known in the art of thermoforming.

- The objective technical problem addressed by this distinguishing feature could only be seen in providing an alternative method for thermoforming a known decorative laminated sheet.
- The selection of membrane press moulding as thermoforming method was obvious for the skilled person, in particular in view of E12 which already used this method for structurally closely related decorative laminated sheets. Insofar as membrane press moulding required thinner layers, the skilled person would select an appropriate thickness from the ranges disclosed in E1. This selection was within the routine work of the person skilled in the art and could not give rise to inventive step.

XIII. The relevant arguments of the respondent may be summarised as follows:

- E1 did not qualify as the closest prior art document as it related to a totally different technical field. The patent related to decorative laminated sheets to be laminated to another material by membrane press moulding, whereas E1 was directed to laminates to be used as such to replace building materials, but not to be attached to any other material.
- E12 was in fact the closest prior art, as it disclosed a laminate to be used in a membrane press moulding process. However, the laminates of E12 had some drawbacks: for example, they became cloudy or opaque during embossing or heat-sealing and were

not resistant to scratch. The problem underlying the patent was to overcome such drawbacks. It was solved by using the layers of a laminate as specified in claim 1. There was no hint to this solution in the prior art in the field.

- But even if E1 were considered the closest prior art, the claimed subject-matter was still inventive because there was no hint in E1 to attach the product therein obtained to any other substrate. In fact, E1 and E12 lay in different technical fields so that it would not occur to the skilled person to combine them. Furthermore, the thickness of the laminates of E1 made them unsuitable for membrane press moulding.

XIV. Both appellants request that the decision under appeal be set aside and that European patent No. 0 875 374 be revoked in its entirety.

The respondent requests that the appeals be dismissed (main request), or that the patent be maintained on the basis of the claims of any of auxiliary requests 1 to 3 filed with letter dated 24 August 2017.

Reasons for the Decision

MAIN REQUEST (claims maintained by the opposition division)

1. Inventive step

1.1 Instead of relying on E9 as the closest prior-art document, as they had done during the opposition proceedings (see point IV above), the appellants

started from E1 as the closest prior art in their inventive-step attack.

- 1.2 The patent in suit relates to a decorative laminated sheet, and in particular to a decorative laminated sheet having excellent mouldability, low temperature impact resistance, surface smoothness and colourless transparency; the decorative laminated sheet is resistant to becoming cloudy or opaque as a result of embossing or heat-sealing (see paragraph [0001]). Such decorative sheets are laminated on metallic or wooden materials such as furniture, cabinets, fittings, desks and cupboards (see paragraph [0002]).

Claim 1 is directed to the use of a decorative laminated sheet comprising:

(A) a layer of completely amorphous polyester type resin manufactured by using a dicarboxylic acid and diol components wherein the dicarboxylic acid is terephthalic acid and the diol components are 60 to 80 mol% of ethylene glycol and 20 to 40 mol% of 1,4-cyclohexane dimethanol; and

(B) a substrate layer composed of PET

for membrane press moulding.

- 1.3 Closest prior art

- 1.3.1 E1 relates to a laminated synthetic building material which incorporates a high-resolution image of a natural building material such as wood or stone and can be thermoformed into selected shapes (see column 2, lines 11 to 15). Illustrative articles that can be constructed of such building materials include table

tops and cabinet doors (see column 4, lines 26 to 36). In particular, claim 1 of E1 relates to a solid surface prepared from copolyesters laminated onto an image layer comprising:

(A) an outer layer comprising a transparent PETG copolyester that can be semi-crystalline or amorphous (see column 3, lines 7 to 8);

(B) a polymeric film having an image printed onto it; and

(C) a backing layer comprising a polymer selected from either polyvinyl chloride or PETG copolyester.

1.3.2 It was undisputed between the parties that layers (A) and (C) of E1 may fall under the definition of layers (A) and (B) of claim 1, and that E1 does not disclose membrane press moulding.

1.3.3 The board agrees with the respondent that the disclosure of E1 is indeed not a suitable starting point for assessing inventive step. According to EPO jurisprudence, the closest prior art for that purpose is a prior-art document disclosing subject-matter conceived for the same purpose or aiming at the same objective as the claimed invention, and having the most relevant technical features in common.

1.3.4 Unlike the invention, which aims to provide materials for lamination, E1 in fact relates to solid surfaces to be used as building materials in themselves, i.e. to solid surfaces having the properties of building materials and to be used to replace materials such as wood or stone (column 4, lines 26 to 36).

Thus, the skilled person would not look at E1 to solve the problem of the invention, namely to provide decorative sheets that are to be laminated to other

substrates, because the laminates of E1 are not at all intended for such use.

- 1.3.5 In fact, E12 is the closest prior-art document, because - like the patent in suit - it relates to a decorative laminated sheet to be used in a membrane press moulding process.

E12 describes in paragraphs [0024] to [0027] (see also figure 2b) the lamination of a decorative laminated sheet 10, comprising an upper layer 11 made from amorphous PET (see paragraph [0018]) and a lower layer 12 made from polyvinyl chloride, onto a contoured substrate 20 using a vacuum press. The vacuum press comprises a superior lamella 32 to which an air bag 32a made of rubber is attached. The rubber air bag 32a embodies a membrane and therefore the vacuum process of E12 constitutes a membrane press moulding process.

However, E12 differs from the claimed subject-matter in terms of the layers.

1.4 Problem to be solved and its solution

- 1.4.1 According to the respondent, in the light of E12 the object of the invention is the provision of a decorative laminated sheet that resists becoming cloudy or opaque as a result of embossing or heat-sealing and has excellent impact resistance (see paragraph [0010] of the patent specification).

- 1.4.2 This problem is solved by using a decorative laminated sheet having the specific layers defined in claim 1, namely a specific polyester type for layer (A) and a layer (B) composed of PET.

1.4.3 It has not been contested that this problem has been credibly solved by the measures taken, and the board too is satisfied that this is indeed the case.

1.5 Obviousness

1.5.1 E12 specifically and mandatorily requires an amorphous PET upper layer and a PVC lower layer. There is no hint in E12 towards a layer of completely amorphous polyester-type resin PETG, manufactured by using a dicarboxylic acid and diol components as specified in claim 1, let alone towards replacing the PVC layer with a PET layer in order to solve the above-identified technical problem.

1.5.2 The appellants have not argued that from any other document cited in the proceedings it would have been obvious to modify the laminate of E12 in order to solve the technical problem defined above. Therefore, there is no need to go into this issue.

2. *The appellants' attack on inventive step*

2.1 As pointed out above, the appellants argued that the claimed subject-matter lacked inventive step starting from E1 as closest prior art.

2.1.1 In their view, the claimed subject-matter was obvious from E1 because this document disclosed that the solid surface therein obtained "can be shaped and formed into a variety of useful products by the process known as thermoforming" (see paragraph bridging columns 7 and 8).

2.1.2 They saw the objective technical problem addressed by the invention in view of E1 as "providing an

alternative method for thermoforming a known decorative laminated sheet" (see page 5 of the statement of grounds of appeal of both appellants under the heading "e) The objective technical problem").

- 2.1.3 The solution to this problem was obvious because membrane press moulding was a well-known thermoforming method, as acknowledged in the patent itself and as shown in E12. The skilled person tasked with thermoforming the laminated sheet of E1 would, in the course of routine work, consider membrane press moulding and find the appropriate temperature and pressure by routine experimentation. In particular, the thickness of the outer layer and the backing layer in E1 ranged from 0.76 mm to 6.4 mm (see column 4, lines 39 to 42) and would result in laminated sheets having a total thickness of ca. 1.52 mm, taking the lower values of both ranges, and thus within the range suitable for membrane press moulding. In fact, the patent itself defined the thickness of the whole decorative laminated sheet as being from 0.15 to 2.0 mm (see paragraph [0029]) and thus within the range covered by E1.
- 2.2 This attack must fail in any case, because E1 does not qualify as closest prior art for the reasons discussed above in points 1.3.1 to 1.3.4. But even starting from E1, in favour of the appellants, the skilled person faced with the problem of providing an alternative thermoforming method would not arrive in an obvious manner at the claimed subject-matter.
- 2.3 The skilled person would find no motivation in E1 to attach the laminate used therein to any other product, because the product thereby obtained is already a finished product to be used directly as a final product

and not to be laminated to any other surface. Neither E1, nor any other document in the proceedings, provides the skilled person with a hint to use the solid surfaces therein disclosed as decorative laminates to be attached to any other material. This objection is clearly made *a posteriori*, in the knowledge of the invention.

Insofar as the appellants argued that the skilled person would have done so because the thickness of the products in E1 overlapped with the thickness of the claimed decorative laminated sheets, the following is noted:

- Although E1 covers the possibility of using layers having a minimum thickness of 0.76 mm, the total thickness of the solid surfaces obtained would need to be suitable for their intended use. Thus, when used for table tops and cabinet doors it should have a thickness resulting in a surface strong enough to bear the weight of items likely to be placed thereon (see column 6, lines 44 to 49).
- The skilled person would understand from this teaching of E1 that the solid surfaces therein described would have the appropriate thickness for their intended use. E1 does not suggest at all that thinner surfaces could be prepared for lamination to other materials when used for counter tops or table tops.

2.4 In view of the above, the board concludes that the person skilled in the art, starting from E12 or E1 as the closest prior art, would not have arrived in an obvious manner at the subject-matter of claim 1. The subject-matter of claim 1 and, by the same token, that

of dependent claim 2, therefore involves an inventive step.

AUXILIARY REQUESTS 1 TO 3

3. Since the main request is allowable, there is no need for the board to deal with these requests.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar:

The Chairman:



M. Cañueto Carbajo

W. Sieber

Decision electronically authenticated