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Datasheet for the decision of 31 August 2023

Case Number: T 0697/20 - 3.2.06

Application Number: 14719135.7

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IPC: A61F13/475, A61F13/494, A61F13/514, D04H1/4291, D04H3/007

Language of the proceedings: EN

Title of invention:
NONWOVEN SUBSTRATES

Patent Proprietor:
The Procter & Gamble Company

Opponents:
Fitesa Germany GmbH
Ontex BVBA
Kimberly-Clark Worldwide, Inc.

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no)

Decisions cited:

Catchword:

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Case Number: T 0697/20 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 31 August 2023

Appellant: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
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Respondent: (Opponent 3)	Kimberly-Clark Worldwide, Inc. 2300 Winchester Road Neenah WI 54956 (US)
Representative:	Dehns St. Bride's House 10 Salisbury Square London EC4Y 8JD (GB)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted on 8 January 2020 concerning maintenance of the European Patent No. 2968028 in amended form.**

Composition of the Board:

Chairman M. Harrison
Members: M. Hannam
D. Prietzel-Funk

Summary of Facts and Submissions

I. An appeal was filed by the appellant (patent proprietor) against the interlocutory decision of the opposition division in which it found that European patent No. 2 968 028 in an amended form met the requirements of the EPC.

II. The appellant requested that the decision under appeal be set aside and the patent be maintained in amended form according to the main request or auxiliary request 1 both submitted with the statement setting out the grounds of appeal.

III. In reply to the appeal, the respondents (Opponent I, Opponent II and Opponent III) each requested that the appeal be dismissed.

IV. The following document is relevant to the present decision:

D1 US-A-2011/0196332

V. The Board issued a summons to oral proceedings and a subsequent communication containing its provisional opinion, in which it indicated *inter alia* that the subject-matter of claim 1 of the main request seemed not to involve an inventive step and that the subject-matter of claim 1 of auxiliary request 1 did not overcome this objection.

VI. Oral proceedings were held by videoconference before the Board on 31 August 2023. At the end of the oral proceedings, the parties' requests remained as

indicated in points II and III above.

VII. Claim 1 of the main request reads as follows:

"An absorbent article comprising:
a nonwoven substrate comprising a layer of fibers, wherein the nonwoven substrate has a specific surface area in the range of 0.5 m^2/g to 5 m^2/g;
a liquid impervious material;
a liquid pervious material; and
a barrier leg cuff,
wherein the nonwoven substrate forms a portion of the barrier leg cuff, and wherein the barrier leg cuff is free of a film."

Claim 1 of auxiliary request 1 reads as for claim 1 of the main request except for the claimed range of specific surface area reading "1.0 m^2/g to 3.5 m^2/g".

VIII. The appellant's arguments may be summarised as follows:

The subject-matter of claim 1 of the main request involved an inventive step. The technical effect of the barrier cuff having a specific surface area of 0.5 to 5.0 m^2/g was that barrier properties could be maintained while using a lesser amount of, or at least no more, nonwoven material. This was supported by the last two sentences of paragraph [0004] of the patent. Paragraph [0036] further explained that an increase in specific surface area led to decreased fluid permeability of the substrate. For any nonwoven substrate, therefore, fluid barrier properties would be improved by increasing the specific surface area. Figs. 27 and 29 of the patent still further illustrated the effect on fluid strikethrough times of two measures for increasing specific surface area, namely the inclusion

of a melt additive that promoted fibril formation and the use of fibres having a lower mass average diameter. All other possible variables of the nonwoven substrates tested and reported in Figs. 27 and 29 were kept constant. These thus showed two different ways of increasing specific surface area, thereby providing a credible generalisation of the teaching of the patent. In Fig. 23 of the patent the specific surface area variation depicted for 'conventional nonwoven substrates' related to inventive substrates without inclusion of glycerol tristearate. It was also a reasonable assumption that the specific surface area of D1 was less than the claimed range.

The objective technical problem to be solved could thus be seen as being to provide barrier properties more efficiently in terms of material usage.
Even considering the more general objective technical problem formulated by the Board, the claimed range would not be obvious when starting from D1. In all the samples of Table 2B of D1, the meltblown sandwiched layer was a small fraction of the total substrate weight such that the specific surface area of these samples was dominated by the outer spunbond layers. Since D1 was directed to modifying the inner layer sandwiched by the spunbond layers, no suggestion of changing the outer spunbond layers was present and thus a suggestion of changing the specific surface area was also not to be found.

Claim 1 of auxiliary request 1 restricted the range for specific surface area relative to claim 1 of the main request. The skilled person would not have been guided to adopt the claimed range of specific surface area solely be making adjustments to the configuration of the central layer of the nonwoven substrate, rather

additional adjustment of the outer layers and/or the basis weight ratio would have been required.

IX. The combined arguments of the respondents relevant to the present decision may be summarised as follows:

The appellant's technical problem formulated when starting from D1 was not objective. No comparative data was provided in the patent in suit to justify the conclusion that the claimed range of specific surface area maintained barrier properties relative to D1 and therefore this could not support a conclusion of greater efficiency of material usage. Figs. 27 and 29 barely supported a technical effect relationship between the parameters plotted on the axes and certainly showed nothing at all in support of the claimed range. D1 failed to disclose a value for the specific surface area of the substrate, yet it inherently had to possess one. The expression 'conventional nonwoven substrates' in the patent in suit clearly related to prior art substrates as was clear from the last sentence of paragraph [0004]. Paragraph [0108] should thus be read in this light. Absent a technical effect, the objective technical problem was simply to provide a nonwoven substrate with a suitable range of specific surface area.
Faced with this objective technical problem, the subject-matter of claim 1 could not involve an inventive step since the claimed range had no credible technical effect over the known substrate of D1.
The same conclusions would be reached for the more limited range of specific surface area defined in claim 1 of auxiliary request 1.

Reasons for the Decision

1. *Main request*

Inventive step, Article 56 EPC

1.1 At oral proceedings, all parties were in agreement that the sole feature differentiating claim 1 over D1 was that the nonwoven substrate had a specific surface area in the range of 0.5 m^2/g to 5 m^2/g.

1.2 Objective technical problem

1.2.1 Whilst no explicit specific surface area (SSA) of the nonwoven substrate is disclosed in D1, such a substrate must inherently have one; its value is simply not disclosed. As regards the claimed range of SSA, the patent in suit fails to indicate a technical problem that is solved by this. It thus follows that the objective technical problem may be seen as being 'to provide an appropriate range of values for specific surface area for the nonwoven substrate'.

1.2.2 The appellant's argument that paragraph [0004] of the patent in suit disclosed the technical problem addressed by the invention is not accepted. The Board can accept, as argued by the appellant, that fluid strikethrough times, as disclosed in this paragraph, are related to SSA insofar as greater SSA, e.g. achieved through smaller diameter fibres or fibrils on the fibres, will generally increase the fluid strikethrough times. Yet claim 1 defines a range of SSA of the nonwoven substrate and the above understanding provides no disclosure of the problem addressed specifically by the claimed range; in fact paragraph [0004] simply states a desire of maintaining fluid

strikethrough times even when using lower substrate basis weights but this is unrelated to the particularly claimed range of SSA.

1.2.3 The technical problem posed by the appellant reading 'to provide barrier properties more efficiently in terms of material usage' is not seen to be objective. The patent in suit fails to provide any data corroborating that barrier properties are indeed improved, or at least maintained constant, with less material used in the nonwoven substrate. Similarly no such data has been provided in the course of the appeal proceedings relative to D1, which would be necessary for the posed problem to be supported by an improvement in material usage relative to the known nonwoven substrates of D1. Even though the SSA parameter reflects the weight of the subject substrate (i.e. it is a value per unit of weight), it is a mere statement in the patent in suit that material costs can be saved by way of providing a substrate with the specifically claimed range of SSA, for which no supporting evidence has been provided.

1.2.4 The appellant's further reference in this regard to paragraph [0036] offers no further support of a technical effect associated with the claimed range of SSA. This paragraph is limited to disclosing how an increase in SSA leads to decreased fluid permeability of the substrate. It was also not disputed by any party that, for any given nonwoven substrate in which all other factors were kept constant, fluid barrier properties will often be improved by increasing the SSA.

1.2.5 The appellant's reference to Figs. 27 and 29 of the patent in suit to support a general trend that fluid

barrier properties improve as SSA increases also fails to disclose a technical effect achieved by the claimed range of SSA.
As regards Fig. 27, this shows a general variation in low surface tension fluid strikethrough times against glycerol tristearate (GTS) weight percentage in a nonwoven substrate, the strikethrough times increasing with GTS weight percent. Further reference to Fig. 23 shows how an increase in melt additive, such as GTS, generally increases SSA of the substrate due to the formation of fibrils. However, the consideration of these two figures fails to justify a credible technical effect for the claimed range of SSA, at best justifying this for the maximum value of SSA shown on the graph of Fig. 23 i.e. about 0.85 m^2/g. Certainly no 'general trend', as alleged by the appellant, was derivable from the figures.

As regards Fig. 29, this depicts the variation in low surface tension fluid strikethrough times against fibre diameter in a nonwoven substrate, the strikethrough times increasing with reduced fibre diameter. Further reference to Fig. 35 shows SSA variation for a number of substrates with different mass average fibre diameter, each substrate plotted with and without the addition of GTS. Claim 1, however, simply defines a SSA range without any indication of mass average fibre diameter or GTS content of the nonwoven substrate such that a technical effect achieved simply by the claimed range of SSA is not discernible from Figs. 29 and 35 either. The argument that a 'general trend' is illustrated in these figures is thus also not accepted.

1.2.6 The appellant's argument that it was a reasonable assumption that the SSA of D1 was less than the claimed range is also not accepted. As indicated in point 1.2.1

above, no conclusion can be reached about any concrete values of SSA for the substrates of D1; a value is simply not disclosed. Whilst the nonwoven substrates of D1 must possess a SSA, for any particular substrate this could be lower than, greater than, or indeed even within, the claimed range of SSA. For this reason also, no 'general trend' could be seen in the patent in suit showing, relative to D1, an improvement in strikethrough times or impermeability of the nonwoven substrate. Consequently, an increase in SSA over D1, let alone a technical effect relating to the particular range of SSA defined in claim 1, cannot be deduced.

1.2.7 A similar conclusion is reached with respect to the appellant's argument that the absence of a SSA value in D1 should not be treated differently to a situation in which a value disclosed in the prior art lay outside the claimed range. In both cases, the lack of data showing a benefit imparted by the claimed range over a notional neighbouring value of SSA results in no technical effect being attributable to the claimed parameter range.

1.2.8 Concluding from all of the above, no technical effect resulting from the claimed range of SSA can be seen. Consequently, the technical problem posed by the appellant based on an improvement in substrate impermeability over D1, reading 'to provide barrier properties more efficiently in terms of material usage', is not objective.

1.2.9 In view of the fact that the nonwoven substrate of D1 inherently possesses a SSA, but that its value is not disclosed, the objective technical problem is therefore seen as being 'to provide an appropriate range of values for specific surface area for the nonwoven

substrate'.

1.3 Obviousness

1.3.1 Starting from D1 and wishing to solve the objective technical problem, the skilled person would reach the subject-matter of claim 1 without exercising an inventive step.

1.3.2 The patent in suit fails to provide any data to show that the claimed range of SSA is particularly beneficial to the nonwoven substrate in any regard, for example permeability, liquid strikethrough time or comfort. Indeed, Fig. 23 of the patent itself includes a SSA from 0.5 to 0.6 m^2/g indicated as relating to 'conventional nonwoven substrates' (see paragraph [0108]) such that at least this part of the claimed range cannot be seen to offer a benefit over prior art substrates. The appellant's argument that the SSA for 'conventional nonwovens' plotted in Fig. 23 related to the nonwoven substrates of the invention but without GTS, is not accepted. 'Conventional', at least in the patent in suit, relates to prior art substrates as also corroborated on page 2, line 36 of the patent in which nonwoven substrates known in the art are referred to as 'conventional'. The patent in suit also fails to indicate any SSA outside of the claimed range as being less beneficial than that within the range. It is thus apparent that, lacking any particular benefit over the known nonwoven substrates, the claimed range of SSA is nothing more than an appropriate range of values that the skilled person would select without having to exercise an inventive step.

1.3.3 The appellant's reference to Table 2B of D1 with the argument that the skilled person was not guided to

modifying the outer spunbond layers of the substrate in order to reach the claimed subject-matter does not alter the finding that the subject-matter of claim 1 lacks an inventive step. The skilled person is merely faced with providing an appropriate range of values of SSA for the nonwoven substrate. Since the skilled person already knows how reduced fibre diameter contributes to an increase in SSA (see point 1.2.2 above with respect to the appellant accepting this relationship), and in the absence of the claimed range providing a technical benefit for the substrate, the skilled person would select the claimed range as being appropriate for solving the posed objective technical problem without exercising an inventive step.

1.3.4 The subject-matter of claim 1 thus lacks an inventive step (Article 56 EPC). The main request is therefore not allowable.

2. *Auxiliary request 1*

Inventive step, Article 56 EPC

2.1 Claim 1 of auxiliary request 1 defines that the specific surface area is limited to the range of 1.0 m^2/g to 3.5 m^2/g. This more limited range compared to that defined in claim 1 of the main request fails to overcome the objection that the patent does not indicate a technical effect achieved by the claimed range. Rather, the more limited claimed range remains no more than an appropriate range of values of SSA for the nonwoven substrate, which the skilled person would select in order to solve the objective technical problem without exercising an inventive step.

2.2 Whilst the range claimed in auxiliary request 1 is, contrary to that of the main request, outside that disclosed for conventional nonwovens (see Fig. 23 of the patent; SSA for conventional nonwovens plotted up to 0.6 m2/g) this is not decisive. Rather it is the lack of a plausible technical benefit of the claimed SSA range over (e.g. immediately) neighbouring SSA values that prohibits an inventive step from being recognised in the claimed range.

2.3 The appellant's sole argument on this objection, provided in the second paragraph on page 5 of its grounds of appeal, alleges that the skilled person would not have been induced to achieve the claimed range of SSA solely be making adjustments to the configuration of the central layer of the nonwoven substrate, rather additionally adjustment of the outer layers and/or the basis weight ratio would have been required. This argument, however, fails to provide a technical effect that the claimed range provides for the nonwoven substrate. In the absence of a technical effect, the claimed range cannot support the recognition of an inventive step in claim 1.

2.4 The subject-matter of claim 1 thus lacks an inventive step (Article 56 EPC). Auxiliary request 1 is therefore not allowable.

2.5 Thus, the appeal is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Vodz M. Harrison

Decision electronically authenticated