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D E C I S I O N
of 14 February 2002

Case Number: T 0099/99 - 3.2.2

Application Number: 93830112.4

Publication Number: 0580557

IPC: C23C 28/00

Language of the proceedings: EN

Title of invention:

A process for realizing a non-stick covering on a metallic or other underlayer, in the manufacture of kitchenware for cooking foods and the product thus obtained

Patentee:

Società Italiana Pentole S.p.A.

Opponents:

TEFAL S.A
Ballarini Paolo & Figli S.p.A.

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56

Keyword:

"Novelty (no) main request"
"Inventive step (no) auxiliary request"

Decisions cited:

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Catchword:

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Case Number: T 0099/99 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 14 February 2002

Appellant: Società Italiana Pentole S.p.A.
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Decision under appeal: Decision of the Opposition Division of the European Patent Office posted 16 November 1998 revoking European patent No. 0 580 557 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: W. D. Weiß

Members: R. Ries
R. T. Menapace

Summary of Facts and Submissions

I. European patent No. 0 580 557 was granted on 30 August 1995 on the basis of European patent application No. 93 830 112.4.

II. The granted patent was opposed by three opponents (OI: TEFAL S.A.; OII: Ballarini Paolo & Figli S.p.A.; OIII: TVS S.p.A.) on the grounds that its subject matter lacked novelty and did not involve an inventive step (Article 100(a) EPC).

III. With its decision posted 16 November 1998 the opposition division held that the claimed subject matter according to the main request and the auxiliary request lacked novelty, or did not involve an inventive step, respectively, and revoked the patent having regard to documents.

E1: EP-B-0 188 958

E2: EP-B-0 285 161

E3: The Lexicon Webster Dictionary volume 1, pages 304 and 367

IV. Against this decision an appeal was filed by the patentee (appellant) on 8 January 1999 and the appeal fee was paid on 12 January 1998.

V. In the appeal proceedings, opponent OII did not submit any arguments in response to the appellant's statement of grounds.

With its letter dated 9 January 2002 opponent OIII (TVS S.p.A) informed the Board that its opposition was withdrawn. Hence, OIII is no longer party to the proceedings.

VI. Oral proceedings before the Board were held on 14 February 2002.

- The appellant (patentee) requested that the decision under appeal be set aside and the patent be granted on the basis of either the sets of claims filed as Annex 2 to the letter dated 25 March 1999 (main request) or of the set of claims filed as Annex 3 to said letter (auxiliary request).
- The respondent (opponent OI) requested that the appeal be dismissed.

VII. The independent claims 1 and 7 of the main request read as follows:

"1. A process for realising a non-stick covering on a metallic or other underlayer (3), in the manufacture of kitchenware for cooking foodstuffs, comprising a step of applying a first, continuous layer (2) having uniform thickness of non-stick material over the whole surface of said underlayer (3) destined to come into contact with the foodstuffs, characterized in that it comprises the further steps of:

- partially firing said first layer (2) at a temperature and for a duration which permit the subsequent attachment and reticular integration of a second non-continuous layer (4) of non-stick material to the continuous layer (2);

- applying a second non-continuous layer (4) of non-stick material to said partially fired first layer (2), at least limited to a central flat and uniform area of the continuous first layer (2) constituting the bottom of a pan (1), according to areas of greater thickness (5) and areas of lesser thickness (6) arranged in a predetermined pattern and
- firing both non-stick covering layers (2,4) at temperature conditions and times which are proper to obtain a suitable non-stick covering for cooking foodstuffs."

"7. Kitchenware for cooking foodstuffs having an internal non-sticking covering obtained according to the process as defined in any preceding claim."

Claim 1 of the auxiliary request differs from claim 1 of the main request by the wording (in bold letters):

- "- partially firing said first layer (2) at a temperature **comprised between 390°C and 400°C** and for a duration which..."

The wording of independent claim 6 of the auxiliary request complies with that of claim 7 of the main request.

VIII. The appellant argued as follows:

Since the patent in suit relates to a process for providing an anti-adhesive coating on kitchenware, the technical expert is in the present case a person who is familiar with the properties of materials generally used for this type of coatings, in particular with the physical

and chemical properties and the processing of synthetic resins such as polytetrafluoroethylene (PTFE). Before this technical background, the expert, upon reading the patent specification, will understand appropriately the terms "final firing" and "partial firing" featuring in claim 1 of both requests. As it is set out more precisely in the specification, "final firing" is to be carried out in a temperature range preferably being 420 to 440°C and "partial firing" should preferably be performed between 390 to 400°C for a duration sufficient to permit the subsequent attachment and molecular/ reticular integration of the second non-continuous layer. According to the patentee's written submissions, PTFE based resins must be "partially fired" at a temperature not lower than 370°C to effectively influence the molecular structure of the resins and to improve the homogeneity and subsequent fritting of the anti-adhesive layer. At the oral proceedings, the patentee argued that the "partial firing" step must be carried out essentially at a temperature lower than the melting temperature of the resin so that complete melting of the first layer is prevented. It is, therefore, clear to the expert upon reading the patent specification that the term "partial firing" is to be distinguished from the "drying step" which is disclosed in document E1 to be performed between 30 and 80°C, ie at a much lower temperature, simply to evaporate water rather than to modify the molecular structure of the resin.

As to product claim 7 of the main request and claim 6 according to the auxiliary request, the patentee conceded that the appearance and anti-adhesive performance of the coated kitchenware claimed in the patent in suit does not differ from coated culinary utensils known from the prior art. However, the resistance of the anti-adhesive layer to scratching and abrasion which directly results from the

claimed process is significantly improved by the existence of areas of higher and lower thickness in the coating. Given that none of documents E1 or E2 discloses the claimed process or makes it obvious to carry out "partial firing" of the first layer rather than drying it, the claimed subject matter is novel and involves an inventive step.

IX. The opponent argued as follows:

Document D1 discloses a process of forming an anti-adhesive coating of PTFE on a metallic substrate which comprises the steps of forming a first continuous layer of an aqueous dispersion of PTFE, drying the first layer, preferably between 30 to 80°C, applying a second discontinuous layer by using a serigraphic screen on the first layer and sintering the two layers together at 400°C for six minutes. Given that the term "partially firing" in claim 1 of the main request is very broad in its meaning and thus encompasses also the drying step disclosed in document E1, the claimed process cannot be unambiguously distinguished from the process disclosed in E1. Hence, the subject matter of process claim 1 of the main request lacks novelty.

Although claim 1 of the auxiliary request specifies a temperature range for "partially firing" the first continuous layer, it does not involve an inventive step with respect to the technical teaching given in document E1 since the heat treatment of the first layer at 390 to 400°C does not result in a surprising and verifiable technical effect upon the performance of the anti-adhesive coating of the claimed kitchenware vis-à-vis that of conventionally produced cooking or frying pans.

For the same reasons brought forward with respect to the lack of novelty of claim 1, the subject matter of claim 7 of the main request (and of claim 6 of the auxiliary request) which are both directed to the kitchenware obtained by the claimed process cannot be distinguished from the prior art E1 either. After the final baking at 400°C, the serigraphically deposited discontinuous layer provided on the first continuous layer according to the process in document E1 brings about the same anti-adhesive coating as claimed in the patent in suit. Hence the subject-matter of product claim 7 (main request) and product claim 6 (auxiliary request) lacks novelty.

Reasons for the Decision

1. The appeal is admissible since it complies with Rule 65(1) EPC.

2. *Amendments*

The subject matter of claim 1 of the main request originates from a combination of claims 1 and 2 as granted and includes minor editorial amendments.

The temperature range of 390 to 400°C for the "partially firing" step included in claim 1 of the auxiliary request is based on the preferred embodiment of the claimed process disclosed in column 4, lines 26 to 32 of the patent specification. All these statements in the patent specification are based on the documents as originally filed.

Hence, there are no objections on the grounds of Article 123 EPC to the claims of both requests.

3. Main request

3.1 Novelty

The patent in suit relates to a process for providing culinary utensils with an anti-adhesive coating which exhibits an improved resistance to scratching and abrasion. This objective is achieved by depositing on the metallic substrate a first continuous layer, partially firing the first layer and depositing thereupon a second discontinuous layer in a predetermined pattern. After firing both layers, areas of greater and lesser thickness are formed on the surface of the final coating. Moreover, the anti-adhesive coating displays a pleasant and aesthetic decoration according to the preselected pattern when a different colour for the second coating is chosen.

3.2 Such a process is also disclosed in document E1. In a first step, a continuous anti-adhesive layer of a composition based on a dispersion of PTFE is formed on a metallic substrate. After drying between 30°C and 80°C and before sintering said first layer, a second discontinuous layer is applied on this first layer through a serigraphic screen in form of a coloured composition containing an aqueous dispersion of fluorocarbon resin, a thickening and/or gelling agent and a water miscible solvent. The second layer is dried, generally between 50 and 70°C, and, thereafter, the two layers are sintered together at 400°C for six minutes (cf. E1, page 2, lines 25 to 39; page 3, example 1). No trace of the thickening or gelling agent remains in the decorative pattern after being sintered at 400°C which would be liable to affect the food protection properties as well as the appearance and the anti-adhesive performances of the coating (cf. E1, page 3, lines 5 to 8). Given that the second layer effects a decorative

pattern that is maintained after sintering rather than fully absorbed by the first layer, it must be concluded that the thickness of the anti-adhesive coating is discontinuous and varies between areas of higher and lower thickness depending on whether the respective area is covered with only one or with two layers. Thus, as regards the surface structure of the final coatings, no fundamental difference between the claimed coating and the one produced by the process according to E1 can be identified by the Board.

- 3.3 Crucial to the question of novelty is, therefore, the term "partial firing" featuring in claim 1 of the main request. Without a further limitation to a temperature range and without specifying any particular type of material or resin, either in claim 1 or in the description of the patent in suit, this term is open to interpretation at least as far as the extent of the applicable temperatures is concerned. According to the patentee's rather narrow interpretation, the expert would understand this term with respect to a specific material and, therefore, focus his attention essentially on the incipient melting of the resin particles, in particular of particles consisting of the conventionally used PTFE. The patentee also referred in this context to document E3, according to which the term "firing" means "vitrifying, baking or setting on fire", but excludes drying.

However, the term "partially firing" is open to be construed to also include, for example drying at elevated temperatures, baking, burning, solid state agglomerating, liquid-phase sintering or even complete melting, the more so since the claimed process encompasses the processing of a wide variety of appropriate polymer resins. The everyday definitions of "firing" given in document E3 are

not appropriate to enable in patent claims a clear and unambiguous technical distinction between the claimed process and the prior art. Hence the claimed process cannot be unambiguously distinguished by this technical feature from the process disclosed in document E1.

3.4 Consequently the subject matter of claim 1 of the main request lacks novelty vis-à-vis the process disclosed in document E1.

4. *Auxiliary Request*

4.1 In claim 1 of the auxiliary request, the temperature range for partially firing the first continuous layer is restricted to 390° to 400°C. Consequently, the claimed process is novel with respect to the one disclosed in document E1.

4.2 The purpose of this temperature range is to permit the subsequent attachment and molecular/ reticular integration of a second non-continuous layer to said first layer (see patent specification column 4, lines 25 to 32). However, the same objective of attaching and integrating the second discontinuous anti-adhesive layer to the first layer is aimed at by the process according to document E1 simply by drying the first layer. It is neither evident from the patent specification itself nor has the patentee submitted any other evidence or comparative tests to prove that "partially firing" the first layer actually entails an advantageous effect upon the properties of the final coating, ie. on the resistance to scratching or abrasion or on the anti-adhesive performance, vis-à-vis those of the anti-adhesive coatings produced according to the prior art E1. It, therefore, remains obscure which particular problem is to be solved by "partially firing" the first

layer before depositing the second layer, and if so, in which way the solution differs from the known prior art. On the contrary, based on the comparative tests submitted by opponent OIII to support its objection of lack of inventive step, it must be concluded that the products obtained by the claimed process and the process disclosed in document E1 exhibit the same properties. No counter-arguments to challenge these findings were presented by the patentee.

4.3 Consequently, the subject matter of claim 1 of the auxiliary request lacks an inventive step.

5. As to product claim 7 (main request) and claim 6 (auxiliary request), it follows from the above considerations that no recognizable technical feature exists to distinguish the final products as claimed in the patent in suit from those obtained by the process according to document E1 after they have been through the final firing.

Consequently, the subject matter of claim 7 of the main request and of claim 6 of the auxiliary request lacks novelty with respect to document E1.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

V. Commare

W. D. Weiß