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**Datasheet for the decision
of 9 August 2007**

Case Number: T 0249/05 - 3.3.09

Application Number: 94916028.7

Publication Number: 0698054

IPC: C08J 9/00

Language of the proceedings: EN

Title of invention:

Molded closure for a liquid container

Patentee:

SUPREME CORQ

Opponents:

Softer/Oremplast/Tapi
Supercap S.r.l.
GUALA DISPENSING S.r.l.

Headword:

-

Relevant legal provisions:

EPC Art. 54

Keyword:

"Novelty (no) - claimed product: different name in prior art"

Decisions cited:

-

Catchword:

-



Case Number: T 0249/05 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 9 August 2007

Appellant:

(Patent Proprietor)

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office orally announced
10 December 2004 and posted 14 January 2005
revoking European patent No. 0698054 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Kitzmantel
Members: W. Ehrenreich
W. Sekretaruk

Summary of Facts and Submissions

I. Mention of the grant of European patent No. 0 698 054 in respect of European patent application No. 94 916 028.7, filed on 5 May 1994 as International application No. PCT/US94/05002 in the name of *Supreme Corq*, was announced on 17 April 2002 (Bulletin 2002/16).

II. The patent, entitled "*Molded Closure for a Liquid Container*" was granted with fifteen claims, Claim 1 reading as follows:

"1. A molded stopper for removable insertion into a wine bottle obtainable from a composition comprising a thermoplastic elastomer and a blowing agent, wherein the thermoplastic elastomer is at least one styrene block copolymer selected from a styrene-ethylene-butylene-styrene block copolymer (SEBS), a styrene-isoprene-styrene block copolymer (SIS), and a styrene-ethylene/propylene-styrene block copolymer (SEPS)."

Claims 2 to 14 were, either directly or indirectly, dependent on Claim 1. Claim 15 was directed to a method of making the moulded stopper according to Claim 1 having a print thereon.

III. Notice of opposition requesting revocation of the patent in its entirety was filed by

I *Softer SpA, Oremplast Srl and Tapi Srl* on
2 January 2003;

II *Supercap Srl* on 15 January 2003 and

III *Guala Dispensing SpA* on 15 January 2003.

The Opponents based their objections on the grounds according to Articles 100(a) EPC (Opponents I to III; lack of novelty and lack of inventive step) and 100(b) EPC (Opponents II and III) and cited, *inter alia*, the following documents in support of the objections under Article 100(a) EPC:

D1/S1 JP 58-134 863 and English translations.

D7 US-A 3 431 323

As regards D1/S1, the translations provided by Opponent I (D1) and Opponent II (S1) are different but correspond to each other in terms of content. The Board will refer to D1 only.

IV. With the decision, orally announced on 10 December 2004 and issued in writing on 14 January 2005, the Opposition Division revoked the patent.

The decision was based on Claims 1 to 15 according to the main request filed with the letter dated 22 October 2003 and Claims 1 to 14 of the auxiliary request filed in the oral proceedings.

Claim 1 according to the main request differed from Claim 1 as granted in that the selection of the styrene block copolymer was limited to SEBS and SIS. According to Claim 1 of the auxiliary request the styrene block copolymer was limited to SEBS only.

In its decision, the Opposition Division acknowledged the novelty of the claimed subject-matter over the stoppers disclosed in D1 and held that the 90% hydrogenated SBS triblock copolymer exemplified therein did not meet the hydrogenation degree of at least 96% or 97% required to call the polymer an SEBS block copolymer.

The presence of an inventive step was, however, denied because D1 rendered the replacement of the partially hydrogenated SBS block copolymer by its fully hydrogenated variant SEBS obvious. In the Opposition Division's view, D1 implicitly gave the information that complete hydrogenation would be advantageous with respect to the improvement of the taste and odour properties.

- V. On 11 February 2005 the Patent Proprietor (hereinafter the Appellant) lodged an appeal against the decision of the Opposition Division. The Statement of the Grounds of Appeal was submitted on 18 May 2005. Enclosed with this statement was a set of Claims 1 to 14 according to a new main request and a set of Claims 1 to 14 according to an auxiliary request.

Claims 1 of the main and the auxiliary request read as follows:

Main Request:

"1. A molded stopper for removable insertion into a wine bottle obtainable from a composition comprising a thermoplastic elastomer and a blowing agent, wherein the thermoplastic elastomer is a styrene-ethylene-butylene-styrene block copolymer(SEBS)."

Auxiliary Request:

"1. A molded stopper, molded in the shape of a cork sized to fit a wine bottle, for removable insertion into a wine bottle obtainable from a composition comprising a thermoplastic elastomer and a blowing agent, wherein the thermoplastic elastomer is a styrene-ethylene-butylene-styrene block copolymer (SEBS)."

Experimental data was submitted with a letter dated 18 June 2007 in order to demonstrate that - in contrast to stoppers based on a 90% hydrogenated SBS copolymer according to D1 - stoppers comprising 100% hydrogenated SEBS provided optimum extraction forces of between 30 and 44 kg immediately after bottling and also after usual storage.

VI. The Opponent/Respondent I maintained its objections as to lack of novelty and lack of inventive step pleaded before the Opposition Division and submitted further documents and a test report in support of the objection as to lack of an inventive step.

In a letter dated 6 August 2007 the Opponent/Respondent II confirmed these objections and further reiterated the lack of sufficiency argument brought forward by Opponent III in the opposition proceedings, namely that an enabling disclosure for the SEBS copolymer was missing in the patent specification.

With the letter dated 12 June 2007 Opponent III withdrew its opposition.

VII. During the oral proceedings held on 9 August 2007 the issue of novelty was discussed. In particular, the question arose whether the hydrogenated styrene-butadiene-styrene block copolymer disclosed in D1 as base material for foamed moulded wine bottle stoppers was an SEBS block copolymer in accordance with the claimed invention.

The Respondents' written and oral arguments concerning this issue - as far as they are relevant for this decision - may be summarized as follows:

In the patent specification, the degree of hydrogenation of the SEBS block copolymer used for the claimed stoppers was not disclosed. The borderline between a copolymer which was still to be considered a hydrogenated SBS and a copolymer called SEBS in the sense of the invention was therefore uncertain. The Appellant's allegation that SEBS must have a diene hydrogenation degree of at least 97% was arbitrary and without any basis in the application as filed.

It was disclosed at pages 5/6 of D1 that the hydrogenated block copolymers used for the foamed stoppers of this invention were to be distinguished from conventional SBS rubbers by the hydrogenation of the double bonds in the diene units. It was furthermore pointed out that this saturation by hydrogenation removed unpleasant flavour and odour and was thus responsible for excellent flavour-maintaining properties of the content of the stopper-closed vessel. This implied that D1 called for the highest possible hydrogenation degree of the SBS copolymer.

That this might stretch to complete diene hydrogenation was expressed in D1 by the feature that the hydrogenation degree of the conjugated diene part in the SBS block copolymer was particularly preferably 90% or more (emphasis added by the Board); by virtue of the words "or more" this range embraced hydrogenation degrees up to 100%, thus including SEBS copolymers in the sense of the invention.

VIII. The Appellant argued as follows:

A SEBS block copolymer was by definition a triblock polymer containing two terminal styrene blocks and a mid block composed of ethylene and butylene moieties resulting from a complete hydrogenation of the randomly distributed butadiene units formed through 1,4 and 1,2 addition during the polymerization reaction.

Although a 100% hydrogenation of the diene block was admittedly not achievable, the term "SEBS" in accordance with the invention implied that substantially all diene unsaturation had been removed and the hydrogenation degree was very close to 100%, ie at least 96% or 97%, as already discussed in the oral proceedings before the Opposition Division.

In contrast thereto, the highest hydrogenation value expressly disclosed in D1 was 90%, which was considerably below this required minimum value.

IX. The Respondents requested that the appeal be dismissed.

X. The Appellant requested that the decision under appeal be set aside and the patent be maintained on the basis

of the main request or on the basis of the auxiliary request, both filed with the letter dated 18 May 2005.

Reasons for the Decision

1. The appeal is admissible.
2. *Novelty*
 - 2.1 Language difference between Claims 1 of the main and the auxiliary request

Claim 1 of the main request defines "*a molded stopper for removable insertion into a wine bottle ...*". This definition, considered together with the patent's stated objective to replace natural cork stoppers (paragraph [0002] of the specification), implies that the claimed stopper has the shape of a wine bottle cork.

The same meaning is expressed in Claim 1 of the auxiliary request in different words, where the molded stopper is defined as "*molded in the shape of a cork sized to fit a wine bottle ...*", which, however, does not change the meaning of the Claim.

Since this language variation is the only difference between Claims 1 of the main and the auxiliary request, their respective subject-matter is considered identical and the following novelty considerations relate to both requests.

2.2 Novelty over D1

2.2.1 The disclosure in D1

D1 describes a bung (stopper) for the tight sealing of vessels comprising an elastic expanded material. The compressive stress distortion properties of the elastic materials are similar to those of cork (page 1, lines 3 to 8 in conjunction with lines 25 to 32). On page 11, lines 4 to 7 it is pointed out that *"it is extremely advantageous to have the bung for vessels of the present invention shaped as shown in figure 3, as it is then easy to screw in a corkscrew and remove the bung"*. Figure 3 of D1 (see the original Japanese document) shows a bung of cylindrical shape which is characteristic for wine bottle corks. Although the word "wine bottle" is not mentioned in D1, it is evident from the above explanation that figure 3 depicts a stopper in the form of a wine bottle cork. This was not contested by the Appellant.

According to feature (A) in Claim 1 of D1 the elastic material of the stopper is a hydrogenated alkenyl aromatic hydrocarbon-conjugated diene block copolymer with a degree of hydrogenation of the conjugated diene block of 70% or more.

The block copolymer is of the A-B-A type with "A" *inter alia* being styrene and "B" *inter alia* being butadiene (page 7, line 31 to page 8, line 32). The particularly preferred hydrogenation degree of the B-block is 90% or more (page 8, lines 14 to 22).

On page 5, line 28 to page 6, line 8 a styrene-butadiene-styrene block copolymer (SBS) is disclosed and its properties are compared in flavour and odour with the corresponding copolymer in which the double bonds in the conjugated diene units are hydrogenated.

Conventional foaming agents are used for expanding the elastic material (page 10, lines 18 to 37).

In the light of the above, D1 discloses:

- a foamed moulded stopper in the shape of a wine bottle cork; obtainable from
- a composition comprising a hydrogenated SBS block copolymer
 - in which the hydrogenation degree of the butadiene block is equal to or exceeds 90%;
 - in other words, 90% or more of the mid block units derived from 1,4 and 1,2 addition of butadiene are hydrogenated to ethylene "E" and butylene "B" moieties;
- and a foaming agent.

2.2.2 Hydrogenated SBS according to D1 - SEBS as defined in the patent

For the assessment of novelty, it has to be decided whether the SBS block copolymer with a hydrogenation degree of equal to or greater than 90% according to D1 falls within the term "SEBS" as specified in the claims and the description of the patent in suit.

In the whole patent specification no information is to be found as to the hydrogenation degree of the diene block in SEBS in the sense of the claimed invention.

The commercial designations indicated in paragraph [0018] for three allegedly commercial SEBS copolymers to be used cannot compensate for this lack of disclosure. On the one hand commercial products may change over time and the respective tradenames are therefore of doubtful usefulness for the unambiguous characterisation of a chemical composition, and on the other hand the indicated provenances "J-VON®, Dynaflex GS6771-000 and Dynaflex -GX6768-1000" do not enable one to identify, let alone characterise these materials: "J-VON" could not be established to be a material but is the name of a company which could not be located by the Opponents; the specified Dynaflex materials were unavailable from the indicated company CC&P, Portland, Oregon, and the registered trademark Dynaflex was found to relate to TPE in general, not to SEBS (cf. submission of Respondent II dated 6 August 2007).

Therefore, in order to interpret the meaning of the term "SEBS" as used in the context of the patent in suit recourse has to be made to the knowledge of the skilled person in the relevant technical field, including that reflected by the disclosure of the prior art documents, here in particular D1. The burden of proof rests on the Appellant patentee to establish an interpretation different from one arrived at on this basis, it being the party asserting such a different interpretation.

In the oral proceedings the Appellant admitted that a SEBS block copolymer with a 100% hydrogenated butadiene "B" mid block was technically unrealistic and pointed out that SEBS was an SBS in which substantially all

diene unsaturation has been removed, in particular to a degree of at least 96% or 97% (point VIII). The Appellant, however, has failed to provide convincing evidence that this interpretation of the meaning of the term "SEBS" is indeed supported by the general common knowledge of a skilled person and has thus not discharged its burden of proof in this respect. This stance of the Appellant, albeit accepted by the Opposition Division on the basis a simple assertion, is therefore arbitrary and cannot justify a distinction to be made on this basis between "SEBS" according to the patent and "SBS" with a hydrogenation degree of 90% or more in accordance with D1.

Rather, the use of the designation "SEBS" (admittedly still comprising some diene unsaturation and thus in fact a highly "hydrogenated SBS") is supposedly justified by the distinct properties of "more highly" hydrogenated SBS as compared to "less highly" hydrogenated SBS. Since properties of polymers normally do not change abruptly, a strict borderline between "more highly" hydrogenated SBS, ie "SEBS", and "less highly" hydrogenated SBS, not yet to be called "SEBS", cannot reasonably be assumed to exist. D1 points to the distinct and excellent properties of SBS block copolymers in which the unsaturated diene bonds have been hydrogenated (page 5, line 28 to page 6, line 4), these properties (ie removal of unpleasant flavour and odour) being relevant for use as a cork stopper substitute according to D1 as well as according to the claimed subject-matter. The polymers used in D1 must therefore have a correspondingly high degree of hydrogenation.

Considering that this degree of hydrogenation is particularly 90% or more, there is no reasonable justification for the Appellant/patentee's assumption that this material of D1 is essentially different from the SEBS material as defined according to the patent in suit, other than merely by its name.

Therefore, in the Board's judgment, at the very least there must be a considerable overlap between the term "SEBS" as used in accordance with the claimed invention and an "SBS hydrogenated to a degree of 90% or more" according to D1.

2.2.3 Conclusion

For the above reasons, D1 anticipates the subject-matter of Claim 1 of the main and the auxiliary requests.

Therefore, both the main and the auxiliary requests are not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

G. Röhn

P. Kitzmantel