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Datasheet for the decision of 11 March 2022

Case Number: T 2197/19 - 3.2.05

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Language of the proceedings: EN

Title of invention:
Multistage process for producing hollow plastic articles from half shells

Patent Proprietor:
Basell Polyolefine GmbH

Opponent:
Kautex Textron GmbH & Co. KG

Relevant legal provisions:
EPC Art. 56
RPBA 2020 Art. 13(2), 25(3)

Keyword:
Inventive step (yes)
Late-filed objection - admitted (no)

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Case Number: T 2197/19 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 11 March 2022

Appellant: (Opponent)	Kautex Textron GmbH & Co. KG Kautexstr. 52 53229 Bonn (DE)
Representative:	Richly & Ritschel Patentanwälte PartG mbB Sattlerweg 20 51429 Bergisch Gladbach (DE)
Respondent: (Patent Proprietor)	Basell Polyolefine GmbH Brühler Strasse 60 50389 Wesseling (DE)
Representative:	LyondellBasell c/o Basell Polyolefine GmbH Industriepark Hoechst, Bldg. E413 65926 Frankfurt am Main (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 13 May 2019 concerning maintenance of the European Patent No. 2253457 in amended form.**

Composition of the Board:

Chairman	P. Lanz
Members:	B. Spitzer
	R. Cramer

Summary of Facts and Submissions

I. The opponent lodged an appeal against the opposition division's interlocutory decision that European patent No. 2 253 457 as amended according to auxiliary request I filed on 13 March 2019 met the requirements of the EPC.

II. The opposition was filed against the patent as a whole on the basis of Article 100(a) (lack of inventive step) and Article 100(b) EPC.

III. In the decision under appeal the opposition division found that the patent disclosed the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art and that the subject-matter of claim 1 of auxiliary request I as filed on 13 March 2019 involved an inventive step.

IV. On 17 August 2021 the parties were summoned to attend oral proceedings to be held on 11 March 2022.

V. In a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal in the 2020 version (RPBA 2020), issued on 21 January 2022, the parties were informed of the board's provisional opinion.

VI. *Requests*

The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed or, as an auxiliary measure, that the decision under

appeal be set aside and that the patent be maintained in amended form on the basis of the claims of any of the new auxiliary requests I to III, all filed with its reply to the statement of grounds of appeal and received on 4 February 2020.

VII. The following documents were referred to during the appeal proceedings:

D2: DE 31 17 179 A1
D3: GB 1 410 215
D5: EP 1 184 157 A1
Wikipedia article about "Spherical shell"

VIII. The independent claim according to auxiliary request I as filed on 13 March 2019 and underlying the decision under appeal (main request) reads as follows:

"A process for producing hollow plastic articles, encompassing the following steps:
a) producing a tubular plastic parison by means of extrusion or coextrusion;
b) cutting open the plastic parison to produce two planar-surface parts by separating the plastic melt with the aid of flow dividers arranged in the interior of the blow molding head;
c) molding the planar-surface parts in two mold halves by applying subatmospheric pressure within the mold halves, and/or injecting compressed air from the center of the closed mold to give half shells, where a removable intermediate frame separates the mold halves from one another at least along the peripheral edges, so that the semifinished products/half shells are not in contact with one another;
d) opening the mold halves and removing the intermediate frame;

e) closing the mold halves, with the result that the half shells come into contact with one another along a peripheral rim; and
f) bonding the half shells to give a hollow article, wherein the plastic parison has a structure composed of two or more layers."

IX. The appellant's submissions can be summarised as set out below.

Lack of inventive step

The subject-matter of claim 1 did not involve an inventive step starting from document D3 in combination with documents D2 and D5.

The subject-matter of claim 1 differed from document D3 in
feature group 1:
- method step a) "*producing a tubular plastic parison by means of extrusion or coextrusion*";
- method step b) "*cutting open the plastic parison to produce two planar-surface parts by separating the plastic melt with the aid of flow dividers arranged in the interior of the blow molding head*" and

feature 2:
- in the last part of step f) "*wherein the plastic parison has a structure composed of two or more layers*".

Concerning the preparation of "half shells", this term had to be interpreted in the broadest way possible. As document D3 was directed to a method of forming a "hollow article of thermoplastic material", the formed sheets 1 and 2 of Figure 2 of document D3 fell under the definition of a half shell.

Feature group 1 had the technical effect of providing the semifinished sheets. According to paragraphs [0004] and [0050] of the patent in suit, feature 2 provided a barrier function. The production of the semifinished sheets (feature group 1) did not have any synergistic effects with the multi-layer structure of the parison (feature 2). Thus, the skilled person was faced with two separate partial objective technical problems.

Looking for a solution to the first partial objective technical problem of how to achieve two planar-surface parts, the skilled person would have consulted document D2. Document D2 was directed to a process and a device for producing planar-surface plastic panels (see document D2, title; Figure 4; page 12, third paragraph; page 14, first paragraph). Thus, the skilled person would have arrived at a method comprising the steps a) and b).

For the second partial objective technical problem of how to achieve a barrier function for fuel tanks, the person skilled in the art would have consulted document D5. Document D5 was directed to the barrier function of hollow plastic articles for fuels. This was explicitly disclosed in paragraphs [0026] and [0027] of document D5, which corresponded, almost literally, to paragraphs [0050] and [0051] of the patent in suit. Document D3 itself did not offer a solution to the second partial objective technical problem. It made no mention at all of barrier properties, but referred to the improvement of the mechanical stability (see document D3, page 1, lines 58 to 64, and page 4, lines 104 to 114). Document D3 did not merely disclose a double-wall container part but in particular a hollow plastic article (see document D3, e.g. claim 1; page 1, line 15). The latter

could be part of a double-wall container but, in addition, it was a hollow plastic article *per se*, suitable to contain liquids. Any other interpretation was too narrow. Furthermore, a double wall was not the same as a multi-layered structure. For improving the barrier properties, there were several possibilities, e.g. an increased wall thickness or multi-layered structures. The fact that paragraph [0004] of the patent in suit disclosed different possibilities for improving barrier properties was irrelevant. Starting from the hollow plastic article of document D3, the skilled person would have chosen the two-layered structure known from document D5 (see document D5, paragraph [0027]) and would have arrived at the claimed invention.

Admittance of the inventive-step objection having regard to document D5 in combination with documents D2 and D3

This objection should be admitted. Exceptional circumstances as defined in Article 13(2) RPBA 2020 applied as this objection had already been raised in the first-instance proceedings (see decision under appeal, Reasons, point 3.4), the documents were known to the parties, and this objection constituted a reaction to the preliminary opinion of the board.

X. The respondent's submissions were essentially as set out below.

Lack of inventive step

Starting from document D3, the preparation of "half shells" was identified as a further distinguishing feature. "Half shells" were defined in paragraph [0017]

of the patent in suit. In the Wikipedia article about "Spherical shell" "shells" were three-dimensional objects which were vaulted to the outside. The term "half shells" defined the intermediate products in the preparation of the hollow article whose volume was intended to hold the medium. This definition of "half shells" was supported by the fact that parts should be installed within the hollow article, which were attached to the insides of the "half shells" (see patent in suit, paragraph [0065]). Contrary thereto, the articles prepared in document D3 were not containers but parts of a double-wall container (see document D3, page 1, lines 30 and 31). Thus, in document D3 the outer surface of the inner sheet would be in contact with the medium in the container. The hollow articles of document D3 were not produced with two symmetrical or close-to-symmetrical mold parts but with a male and a female mold part (see document D3, page 2, lines 114 to 119). Although document D3 described inserts positioned between the formed sheets (see document D3, page 2, lines 57 to 58), the function thereof was reinforcement or heat insulation.

The technical effects of the distinguishing features and the formulation of the two partial objective technical problems suggested by the appellant were not contested.

For solving the first partial objective technical problem the skilled person would not have considered document D2. Document D3's teaching directed the skilled person away from preparing articles from tubular parisons. Consequently, the skilled person would not have taken into account document D2, which indeed taught the use of a tubular parison. Reference was made to document D3, page 1, lines 58 to 62 and

lines 19 to 48; page 2, lines 100 to 107; page 3, lines 9 to 25 and lines 116 to 119; and page 4, lines 81 to 90.

Also, the combination of documents D3 and D5 was based on hindsight. Starting from document D3, the skilled person would have had no incentive to choose a structure of two or more layers as there was already a double-wall container to solve the above-mentioned first partial objective technical problem (see document D3, page 1, lines 30 to 31). The articles of document D3 did not contain any fluid in their interior but were double-walled parts of a container. In document D3, the two layers corresponded to the inner and outer walls of the container. Thus, the person skilled in the art had no incentive to further use a multi-layer structure for the inner and outer walls of the hollow plastic article. Moreover, for increasing the strength of the double-wall container, document D3 suggested inserts between the formed sheets (see document D3, page 2, lines 57 to 62). Document D3 also mentioned an embodiment with the inner and outer walls of different plastic materials (see document D3, page 3, lines 114 to 119). The person skilled in the art would have chosen appropriate plastic materials to achieve the required properties. All these facts taught the person skilled in the art to move away from using multi-layered sheets in the production of the article of document D3. Furthermore, paragraph [0004] of the patent in suit disclosed several possibilities for improving the barrier properties, such as fluorination, painting or coating, plasma polymerisation, the use of blends or co-extrusion. Multi-layer structures for improving the barrier properties were known in the art. However, starting from the double-wall container known from document D3, the person skilled in the art would

not have been prompted to replace the double-wall structure.

Non-admittance of the inventive-step objection having regard to document D5 in combination with documents D2 and D3

This objection was filed for the first time in oral proceedings before the board. It was late-filed and should not be admitted under Article 13(2) RPBA 2020. Document D5 as a suitable starting point had been discussed in the first-instance proceedings (see decision under appeal, Reasons, point 3.4). If the appellant wished to dispute the finding in this regard, it could and should have done so in its statement of grounds of appeal. The opposition division's opinion concerning the inventive-step objection starting from document D3 was in principle confirmed in the board's communication under Article 15(1) RPBA 2020, which did not raise new aspects. The documents D5, D2 and D3 were well-known and, hence, any objection based on these documents could and should have been raised earlier. Consequently, no exceptional circumstances applied.

Reasons for the Decision

1. Inventive step of the subject-matter of claim 1 of the main request

1.1 Document D3 discloses "a method for moulding hollow articles of thermoplastic material". It is undisputed that document D3 constitutes a suitable starting point for considering inventive step. There is a consensus that the subject-matter of claim 1 differs from document D3 in
feature group 1:

- method step a) "*producing a tubular plastic parison by means of extrusion or coextrusion*";
- method step b) "*cutting open the plastic parison to produce two planar-surface parts by separating the plastic melt with the aid of flow dividers arranged in the interior of the blow molding head*", and

feature 2:

- in the last part of step f) "*wherein the plastic parison has a structure composed of two or more layers*".

1.2 The board does not agree with the respondent's identification of the preparation of "half shells" as a further distinguishing feature. Document D3 discloses the forming of a hollow article made of thermoplastic material, which is produced by two sheets and two molds with an intermediate mold plate. The two halves, i.e. "*said first and second sheets*", are caused "*to join together and thus complete the forming of said hollow article*" (see document D3, claim 1). The formed sheets 1 and 2 as shown in Figure 2 of document D3 can be considered half shells even when applying the respondent's interpretation that shells are three-dimensional objects which are vaulted to the outside. The respondent's further arguments are not reflected in the wording of claim 1 of the main request:

- Although it is true that the hollow articles of claim 1 of document D3 constitute a double wall of a container but not the container *per se*, claim 1 of the main request is not directed to a hollow container but merely to a process for producing a hollow plastic article. The double-wall part of document D3 is a hollow article and thus anticipates this aspect of claim 1 of the main request. This is explicitly mentioned in claim 1 of

document D3 ("*A method of forming a hollow article of thermoplastic material*").

- The same applies to the respondent's argument regarding the male and female mold parts of document D3. Contested claim 1 is not directed to symmetrical or close-to-symmetrical mold parts.
- Also, claim 1 is not limited to an article whose volume is intended to hold the medium. It only refers to hollow plastic articles.
- Although the patent in suit discloses in paragraph [0065] that parts should be installed within the hollow article by attaching them to the insides of the half shells, claim 1 of the main request is not limited accordingly. Apart from that, document D3 describes inserts positioned between the formed sheets (see document D3, page 2, lines 57 to 58).
- Furthermore, claim 1 of the main request does not specify which side of which wall is in contact with the medium. Thus, it is not relevant that in document D3 the outer surface of the inner sheet is in contact with the medium in the hollow plastic article.

Consequently, the preparation of "half shells" is known from document D3.

1.3 It is undisputed that feature group 1 has the technical effect of providing the semifinished sheets and that feature 2 provides a barrier function as disclosed in paragraph [0050] of the patent in suit. There was also a consensus that the production of the semifinished sheets (feature group 1) does not have any synergistic effects with the multi-layer structure of the parison (feature 2). Thus, the skilled person is faced with two separate partial objective technical problems: how to achieve two planar-surface parts, and how to achieve

barrier properties for a fuel tank.

1.4 Document D2 deals with a method for the extrusion of a polymer sheet (see document D2, title). It clearly shows two flat sheets 62 (see document D2, Figure 4, reference sign 62), which are formed when the tubular parison is extruded and cut open, leaving the extruder through the slit-shaped outlets 60. The method of document D3 requires separate sheets (see document D3, page 2, lines 107 to 114). In view of this, the teaching of document D2 is in line with the very essence of the teaching in the closest prior art (document D3).

The passages of document D3, cited by the respondent, are concerned with the disadvantages of blow-molding a tubular parison to produce a hollow plastic article. In document D3 these disadvantages are overcome by using two planar-surface parts, first and second sheets 1 and 2, which are molded to produce a double-wall container (see document D3, page 2, lines 107 to 114 and page 3, lines 9 to 25). Thus, the passages cited by the respondent do not contain a teaching that moves away from using a tubular parison *per se*. Instead, the teaching moves away from blow-molding a tubular parison into a hollow plastic article.

Document D2 is not concerned with conventional blow-molding of tubular parisons. Instead, it discloses the production of two or more plastic sheets (see document D2, title, and page 6, third paragraph). The blow-molding of a slit tubular parison to produce hollow articles is referred to in document D2 as one embodiment (see document D2, page 5, second paragraph).

Therefore, the skilled person would have combined the teachings of documents D3 and D2. The board agrees with the opinion held by the appellant and the opposition division that the skilled person would have taken into account document D2 and arrived in an obvious way at a method including method steps a) and b).

1.5 Document D5 is directed to a method for producing hollow plastic articles providing a barrier to fuel (see document D5, title, paragraph [0001]). Paragraphs [0026], [0029] and [0032] of document D5 teach that a barrier function is achieved by a parison encompassing several layers. In document D5, paragraph [0027] mentions at least two layers to increase tightness and mechanical stability. Paragraph [0029] refers to several layers having different functions, such as a base layer, a regrind lager, an adhesion-promoter layer and a barrier layer. The method of document D5 comprises producing a tubular parison by blow-molding or co-extrusion blow-molding (see document D5, claim 1, step a)). The plastic parison is cut open to form a planar-surface part (see document D5, claim 1, step b)), then these parts are thermoformed into half shells and welded (see document D5, claim 1, steps c) and d)). The hollow plastic article could be a fuel tank (see document D5, paragraph [0001]).

Document D5 is from the same field as the patent in suit and is concerned with the same problem (see document D5, paragraph [0026]). It offers a solution overcoming the problems of conventional blow-molding of hollow articles. Thus, the person skilled in the art would have considered document D5. However, documents D3 and D5 disclose different solutions. Indeed, document D3 proposes using a double-wall container, which can improve barrier properties, and incorporating

reinforcing inserts for improving mechanical stability (see document D3, page 2, lines 57 to 64). In contrast, document D5 achieves these objects with a hollow plastic article comprising at least two layers (see document D5, paragraphs [0026] and [0027]). Thus, the central aspect of the problem-solution approach is the question whether the skilled person, in the expectation of solving the problem, would have been prompted to modify the teaching of document D3 to arrive at the claimed invention. Since the double-wall container is one of the key features of document D3, it is hardly conceivable that the skilled person would have decided to modify this structure by providing a double-wall container wherein each wall is made of two or more layers. In particular, there are no apparent reasons why the skilled person would have considered co-extruding sheets 1 and 2 of document D3 to provide a parison structure composed of two or more layers and then producing a double-wall container. There is no indication in prior-art documents D3 or D5 that relates to combining these two different solutions. Thus, the skilled person would not have arrived at the solution as claimed in claim 1 of the main request in an obvious manner.

This conclusion is not altered by the appellant's argument that document D3 was not concerned with barrier properties of the container. Barrier properties, i.e. a reduced diffusion, could not only be achieved with different layers but also with a greater wall thickness, as conceded by the appellant. A double-wall structure provides another possibility for improving barrier properties, even if not explicitly mentioned in document D3.

Regarding the appellant's argument that document D5 did

not only disclose a double-wall container but also a hollow plastic article *per se*, the board points out that the technical disclosure in a prior-art document should be considered in its entirety. It is not justified to isolate parts of a document from their context.

1.6 Conclusion on inventive step starting from document D3

The subject-matter of claim 1 of the main request involves an inventive step (Article 56 EPC).

2. *Non-admittance of the inventive-step objection having regard to document D5 in combination with documents D2 and D3*

2.1 During oral proceedings before the board, the appellant wished to present a further inventive-step objection against claim 1 of the main request, starting from document D5 as the closest prior art. In the case at hand, the summons to oral proceedings was notified after the date on which the revised version of the RPBA entered into force, i.e. 1 January 2020 (see Article 24(1) RPBA 2020). Thus, in accordance with Article 25(3) RPBA 2020, the admittance of this objection is governed by Article 13(2) RPBA 2020.

2.2 Article 13(2) RPBA 2020 imposes stringent limitations on appeal submissions which are made at an advanced stage of the proceedings, namely after notification of a summons to oral proceedings. Article 13(2) RPBA 2020 provides that an amendment to a party's appeal case will, in principle, not be taken into account unless the party concerned has shown compelling reasons why the circumstances are exceptional. If such circumstances are present, the board may, in exercising

its discretion, decide to admit an amendment made to the appeal case at this advanced stage of the proceedings.

2.3 As justification for the late-filing of the new inventive-step objection, the appellant pointed out that the inventive-step objection starting from document D5 had already been raised in the first-instance proceedings, the documents were known and the further inventive-step objection was a reaction to the preliminary opinion of the board in its communication under Article 15(1) RPBA 2020.

2.4 The board is unable to see exceptional circumstances within the meaning of Article 13(2) RPBA 2020 for the reasons set out below.

Document D5 as a suitable starting point was the subject of the decision under appeal. The opposition division concluded that document D5 did not constitute a prior art closer to the subject-matter of claim 1 than document D3 (see decision under appeal, Reasons, point 3.4). However, there was neither an objection to this finding in the statement of grounds of appeal, nor an inventive step attack starting from document D5.

Documents D3, D5 and D2 have been thoroughly discussed in the first-instance and appeal proceedings for the inventive-step objection starting from document D3 in combination with documents D2 and D5. Therefore, the further inventive-step objection with document D5 as a suitable starting point constitutes an amendment to the appellant's appeal case. In particular, as the documents were well-known to the parties, this new inventive-step objection could and should have been raised in the statement of grounds of appeal.

In the communication under Article 15(1) RPBA 2020 the board came to the preliminary conclusion, under point 10.6, that a combination of documents D3, D2 and D5 did not render obvious the subject-matter of claim 1 of the main request. The board substantially confirmed the opposition division's finding as stated in point 4.4 of Reasons of the decision under appeal. Thus, the appellant was not confronted with new aspects in the communication under Article 15(1) RPBA 2020.

2.5 Conclusion

The board concludes that the appellant has not provided cogent reasons justifying exceptional circumstances. The appellant's further inventive-step objection is not taken into account pursuant to Article 13(2) RPBA 2020.

3. Overall conclusion

The subject-matter of claim 1 of the main request involves an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Schneider P. Lanz

Decision electronically authenticated