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**Datasheet for the decision
of 29 January 2025**

Case Number: T 0275/23 - 3.3.03

Application Number: 16745647.4

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Language of the proceedings: EN

Title of invention:
MOULDED ARTICLES WITH IMPROVED IMPACT/STIFFNESS BALANCE

Patent Proprietor:
Borealis AG

Opponent:
INEOS Europe AG

Relevant legal provisions:
RPBA 2020 Art. 12(4), 12(6)
EPC Art. 56

Keyword:
Late-filed evidence - Admittance
Inventive step - (no)



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Case Number: T 0275/23 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 29 January 2025

Appellant:

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
9 December 2022 concerning maintenance of the
European Patent No. 3325554 in amended form.**

Composition of the Board:

Chairman D. Semino
Members: D. Marquis
M. Millet

Summary of Facts and Submissions

I. The appeal of the opponent lies against the decision of the opposition division concerning maintenance of European patent No. 3 325 554 in amended form on the basis of the claims of the main request submitted with letter of 12 July 2021 and an adapted description.

II. Claim 1 of the main request read as follows:

"1. 1. Moulded article comprising a heterophasic polypropylene composition

(A) 68 to 90 wt% of a crystalline isotactic propylene homopolymer matrix having a pentad concentration as determined by ^{13}C -NMR spectroscopy of more than 96 mol% and a matrix melt flow rate (MFR_M) as determined at 230°C and 2.16 kg load according ISO 1133 in the range of 20 to 600 g/10min,

(B) 10 to 32 wt% of a predominantly amorphous propylene copolymer with 28 to 50 wt% of ethylene and/or an α -olefin with 4-10 carbon atoms, being present in the composition as dispersed particles, and

(C) 0 to 5.0 wt% of a crystalline ethylene copolymer with an α -olefin with 3-10 carbon atoms being present in the composition as inclusions of the dispersed particles of (B),

(D) 0 to 1.0 wt% of an alpha nucleating agent for the α - and/or γ -phase of isotactic polypropylene,

said composition being further characterized by a total melt flow rate (MFR_T) as determined at 230°C and 2.16 kg load according ISO 1133 in the range of

6.0 to 200 g/10min, a fraction soluble in xylene (XCS) determined at 25°C according ISO 16152 in the range of 15 to 35 wt%, and ratio of MFR_T/MFR_M of ≤ 1.0 ,

whereby the sum of the percentage amounts of the individual components of the composition is equal to 100 percent, and

whereby the moulded article fulfils the following in-equation of formula (I)

$$TL > 3400 - 1293 \times DH + 383 \times DH^2 - 38 \times DH^3$$

wherein

TL is the top load force [N] measured according to DIN 55526 on empty 10 litre pails produced by injection moulding and

DH is the drop height [m] measured according to the test method as described in the experimental part,

wherein the article and the heterophasic polypropylene composition is free of phthalic acid esters as well as their respective decomposition products,

wherein the moulded article is an injection moulded article,

wherein the moulded article is a thin wall packaging element, which is an open-top container with an overall volume of 1.0 to 25 litres with a wall thickness of equal or below 5.0 mm; and

wherein the xylene cold soluble (XCS) fraction measured according to ISO16152 (25°C) of the injection moulded article is in the range of 18.0 to 28.0 wt%."

III. The following documents were *inter alia* submitted during the opposition proceedings:

D6: EP 1 935 938 A1

D8: WO 2014/187687 A1

IV. The decision under appeal, as far as it is relevant to the present appeal, can be summarized as follows:

- Claim 1 of the main request satisfied the requirements of Article 84 EPC,
- Claim 1 of the main request was sufficiently disclosed.
- Claim 1 of the main request was inventive over D6 representing the closest prior art.

V. The opponent (appellant) lodged an appeal against the decision of the opposition division and submitted the following documents with the statement of grounds of appeal:

D15: EP 1 028 985 B1

D16: RIVM - Dutch National Institute for Public Health and the Environment, Analysis of alternatives for a group of phthalates, Final Report, AMEC Environment & Infrastructure UK Limited December 2013

VI. The patent proprietor (respondent) submitted four sets of claims as first to fourth auxiliary requests and the following document with the reply to the statement of grounds of appeal:

D17: Declaration of Markus Gahleitner, dated 31 July 2023

VII. Oral proceedings before the Board were held on 29 January 2025.

VIII. The final requests of the parties were as follows:

- The appellant requested that the decision under appeal be set aside and that the European patent No. 3 325 554 be revoked.

- The respondent requested that the appeal be dismissed or that the patent be maintained on the basis of the claims of any of the first to fourth auxiliary requests submitted with the reply to the statement of grounds of appeal.

Claim 1 of the first auxiliary request corresponded to claim 1 of the main request with the following addition: "wherein the propylene polymer composition is produced in a sequential multi-reactor polymerization process in the presence of a) a Ziegler-Natta catalyst comprising compounds (TC) of a transition metal of Group 4 to 6 of IUPAC, a Group 2 metal compound and an internal donor, wherein said internal donor is citraconate; b) a co-catalyst (Co), and c) an external donor (ED)".

Claim 1 of the second auxiliary request corresponded to claim 1 of the first auxiliary request further limited in that the quantity of ethylene and/or an α -olefin with 4-10 carbon atoms in the predominantly amorphous propylene copolymer is limited to "32 to 46 wt%".

Claim 1 of the third auxiliary request corresponded to claim 1 of the first auxiliary request.

Claim 1 of the fourth auxiliary request

corresponded to claim 1 of the second auxiliary request.

- IX. The parties' submissions, in so far as they are pertinent, may be derived from the reasons for the decision below. The disputed points concerned the admittance of documents D15-D17 into the proceedings and the question of inventive step of claim 1 of the main request and of the first to fourth auxiliary requests in view of D6 as the closest prior art.

Reasons for the Decision

Main request

1. Admittance
 - 1.1 D15 is a patent document that was submitted by the appellant with their statement of grounds of appeal (page 6) in the context of the discussion of inventive step over D6. The respondent contested the admittance of D15 into the appeal proceedings (rejoinder, page 3).
 - 1.2 D15 is referred to in the description of the catalyst in example 1 of D6 (paragraph 121). The appellant argued that D15 clarified the nature of the phthalate internal donor used in D6 (grounds of appeal, page 6). They justified the admittance of D15 on the grounds that the replacement of a phthalate catalyst by a non-phthalate catalyst had become a key issue in the assessment of inventive step (grounds of appeal, page 6, penultimate paragraph). However, the question of the use of a phthalate-free catalyst was not raised in the contested decision for the first time, since it had already been addressed in the notice of opposition (paragraph bridging pages 14 and 15) and had been

discussed during the written opposition proceedings (reply of the patentee, point 42; letter of the opponent of 16 November 2021, page 3, fourth paragraph; letter of the opponent of 25 August 2022, page 5, fourth paragraph). In view of this, the issue of the use of a phthalate-free catalyst is not one which can justify the filing of D15 only with the statement of grounds of appeal. The Board therefore fails to see in the appellant's argumentation the existence of circumstances justifying the admittance of D15 into the appeal proceedings (Article 12(6) RPBA). D15 was therefore not admitted to the proceedings.

1.3 D16 was also filed by the appellant with the statement of grounds of appeal (page 12). D16 is a document concerning the analysis of alternatives for a group of phthalates whose admittance of D16 into the proceedings was not contested by the respondent, who also made use of it in its argumentation (page 2 of the rejoinder). The Board therefore has no reason to exclude D16 and finds it appropriate to exercise its discretion under Article 12(4) RPBA in admitting D16 into the proceedings.

1.4 D17 is a declaration filed by the respondent with the rejoinder to the statement of grounds. It contains two examples and two comparative examples showing the properties of heterophasic copolymers, which, according to a statement of the respondent at the oral proceedings before the Board, were a reworking of the examples and comparative examples of the patent in suit. D17 was said to directly address "new arguments raised in the appeal stage concerning the validity of the comparison in the experimental part" (rejoinder, page 4, item 12). The Board, however, does not see any point raised in the grounds of appeal for the first

time regarding an alleged lack of validity of the examples that would justify admitting D17. Concerns regarding the validity of the comparison of the examples of the patent in suit were already raised in the notice of opposition (pages 9-12), in particular with regard to the use of a VCH modified catalyst in comparative example 1 which point was suggested to be a reason to submit D17 at the appeal stage (rejoinder, items 31 and 32). In view of this, the Board finds that D17 could and should have been submitted in the written phase of the opposition proceedings. No other circumstances were presented justifying the admittance of D17 into the appeal proceedings (Article 12(6) RPBA). D17 was therefore not admitted to the proceedings.

2. Inventive step

2.1 D6 was selected by the parties as the closest prior art at the oral proceedings before the opposition division (decision under appeal, section 7; minutes, section 3.3). The appellant pursues the objection of lack of inventive step based on D6 as the closest prior art in its statement of grounds of appeal (page 6).

2.2 The choice of D6 as the document representing the closest prior art is not disputed in appeal, nor does the Board see any reason to depart from that choice. Example 3 in D6 was considered to be the most relevant disclosure within the closest prior art (decision under appeal, section 7, second paragraph), which is also not disputed in the appeal.

2.3 The analysis of the appellant based on the disclosure of example 3 in D6 and the data in Tables 1 and 2 of D6 showed that the moulded article in example 3 of D6

- (i) was made into a 850 ml cup (statement of grounds of appeal, page 7, penultimate paragraph) whereas operative claim 1 required a volume of 1.0 to 25 litres,
- (ii) contained a disperse phase in the heterophasic polypropylene composition, (considered to be equivalent to the amorphous phase (B)), having an ethylene content of 52.5 wt%, thus above the range of 28-50 wt% of claim 1 (statement of grounds, page 7, last paragraph),
- (iii) was made of a heterophasic polypropylene composition obtained with a catalyst that contained a phthalate instead of being free of phthalic acid esters (statement of grounds of appeal, page 8, second paragraph), and
- (iv) did not satisfy the TL-DH relationship referred to as the inequation in claim 1 of the main request (statement of grounds of appeal, page 8, second paragraph).

2.4 The respondent partly contested the analysis presented by the appellant in their statement of grounds of appeal. The point made by the respondent (rejoinder, page 8, item 23) concerned the validity of the estimation of the amount in component (C) disclosed to be 0.7 wt% in the table on page 7 of the statement of grounds of appeal. Given the open wording of claim 1 of the main request with respect to the composition and that component (C) is an optional component in that claim, the question of whether example 3 of D6

disclosed the presence of a component corresponding to (C) in the amount defined in claim 1 of the main request is, however, not relevant to the present question of inventive step.

2.5 It is also apparent that the pentad concentration of the crystalline isotactic propylene homopolymer matrix (A), which is defined in operative claim 1 as being greater than 96 mol%, was not considered by the parties to be a distinguishing feature over the composition of example 3 of D6. It follows that the article of claim 1 of the main request differs from example 3 of D6 in features (i)-(iv) identified above.

2.6 The opposition division found that the examples of the patent in suit (example 1 and comparative example 1) established that distinguishing feature (iii) resulted in a moulded article free of phthalic acid esters displaying an improved top load force. On that basis, the opposition division formulated the problem as the provision of a thin-walled injection moulded article having an improved impact/stiffness balance (decision under appeal, page 9, first full paragraph). That formulation of the problem was initially agreed to by the respondent (rejoinder, page 8, item 21) but was later revised at the oral proceedings before the Board as the provision of improved articles which are suitable for typical container related applications including stacking and frequent drop and being characterised by an improved balance of puncture energy, drop height and top load. The problem formulated by the appellant (statement of grounds of appeal, page 11, first paragraph) was the provision of an alternative article which had good top load and drop height properties (and which satisfies the relationship

in claim 1).

- 2.7 In order to formulated the technical problem the relevant question is whether the examples and comparative examples of the patent in suit establish the presence of an effect resulting from any of the distinguishing features identified above.
- 2.7.1 Concerning the effects identified in the decision under appeal, it is established case law of the Boards that an unexpected effect demonstrated in a comparative test can be taken as an indication of inventive step on the condition that the nature of the comparison with the closest state of the art must be such that the alleged advantage or effect is convincingly shown to have its origin in the distinguishing feature of the invention compared with the closest state of the art (Case Law of the Boards of Appeal, 10th Edition 2022, I.D.4.3.2).
- 2.7.2 It is however apparent in the present situation that the patent in suit does not contain a comparison that could show a causal relationship between any one or a combination of distinguishing features (i)-(iv) over D6 and any of the effects alleged by the respondent in appeal.
- 2.7.3 The appellant in particular referred to the different product design of the examples and comparative examples, i.e. the melt flow rate values of the matrix and the rubber phase, the relative amount of the matrix and the rubber phase, as well as the ethylene content of the composition (statement of grounds of appeal, page 10).
- 2.7.4 It is indeed apparent that the melt flow rates of the crystalline isotactic propylene homopolymer matrix

component (A) of examples 1-3 (204 g/10 min, 88 g/10 min, 329 g/10 min in Table 1) differ significantly from the melt flow rates of the matrix of comparative examples 1 and 2 (350 g/10 min and 80 g/10 min). The same is true for the ethylene content in the rubber phase (B) between examples 1-3 (8.4 wt%, 8.2 wt% and 7.1 wt% in Table 1) and comparative examples 1 and 2 (6.6 wt% and 6.4 wt% in Table 2).

- 2.7.5 It is also apparent that the catalysts that were used in the examples and comparative examples do not only differ in the use of a phthalate free or phthalate containing internal donors (bis(2-ethylhexyl)citraconate for examples 1-3 and dioctylphthalate for comparative examples 1 and 2) but also in their compositions and preparation. Thus, the catalyst of comparative example 1 was subjected to a further modification (VCH modification, paragraph 188) which was not used in any other of the catalysts of examples 1-3 and comparative example 2 and the catalysts of both comparative examples 1 and 2 had a ratio of co-catalyst to external donor (Co/ED ratio in Tables 1 and 2) of 30, significantly higher than for the catalysts of examples 1-3 which had a Co/ED ratio of 7.6, 7.6 and 7.7.
- 2.7.6 These differences may reasonably be expected to have an impact on the properties of the matrix (A) and rubber phase (B) with which they were prepared and may also explain differences in the properties of the matrix (A) or rubber phase (B) obtained in the presence of the catalysts. The respondent alleged that the VCH modification of the catalyst of comparative example 1 did not impact the preparation of the moulded articles but that statement was not based on any evidence on

file.

2.7.7 The comparison of example 3 with comparative example 1 of the patent in suit that was seen as the most relevant does also not support the argument of the respondent either. The preparations in these examples do not only use different catalysts, as seen above, but they are also conducted under different polymerization conditions (Example 3 vs. comparative example 1: Loop reaction (R1): residence time (h): 0.09 vs. 0.6 and H₂/C₃ ratio: 30.5 vs. 85, Loop reactor (R2): residence time (h): 3.1 vs. 1.0 and H₂/C₃ ratio: 221.2 vs. 80, Gas phase reactor (R3): C₂/C₃ ratio: 399.1 vs. 480 and H₂/C₂ ratio: 167.3 vs. 210). It is reasonable to expect that these differences in the polymerization conditions, as they also concern the amounts in the reactants, will have an impact on the structure of the polymers of the matrix (A) and rubber phase (B) produced in the reactors (R1)-(R3). These differences in the structure of the polymers ultimately could equally be held to be the cause of any differences in the properties of the moulded articles obtained from these polymer compositions.

2.7.8 These differences in the catalysts and compositions of the matrix (A) and rubber phase (B), which do not relate to the distinguishing features (i)-(iv) over D6, do not allow a meaningful comparison of the properties of the moulded articles exemplified in the patent in suit from which it could be concluded that any of distinguishing features (i)-(iv) taken alone or in combination is causally linked to any effect. There is therefore no basis for an improvement of the puncture energy, drop height or top load properties for the moulded articles according to claim 1 of the main request over the article of example 3 of D6. In the

absence of any evidence of an effect over D6 the Board therefore concludes that the problem solved with respect to it is the provision of further moulded articles.

2.8 The question of obviousness is to determine whether a skilled person starting from example 3 of D6 would have arrived at moulded articles according to claim 1 of the main request without inventive skills.

2.9 The first distinguishing feature concerns the volume of the open-top container (feature (i)). The moulded article in D6 has a volume of 850 ml whereas claim 1 of the main request requires a volume of 1.0-25 litres. D6 does not contain further disclosures of specific open-top container volumes but paragraph 96 of D6 mentions the application of the moulded articles to plastic cups and house-wares which could suggest a volume varying around the value of 850 ml of the examples. Given the lack of an effect resulting from the use of a volume of 1.0-25 litres and the general teaching of D6, the Board finds that a skilled person would have considered volumes in the range above 850 ml including also above 1 litre when simply looking for further moulded articles.

2.10 The second distinguishing feature (feature (ii)) concerns the ethylene content of the dispersed phase of the heterophasic polypropylene composition (corresponding to the predominantly amorphous propylene copolymer (B) in operative claim 1). Table 1 of D6 discloses that the comonomer (i.e. ethylene) content of the dispersed phase in example 3 of D6 is 52.5 wt%. D6 also generally teaches that the comonomer content (that can be the ethylene content) is 40 wt% or higher (paragraph 13, page 3, line 5) or preferably 45 wt% or

higher, whereby a content of 50 wt% or higher is even more preferred (paragraph 22).

2.11 Examples 1-3 of D6 disclose several compositions according to the invention with ethylene contents of the dispersed phase slightly above 50 wt% (52 wt%, 54.8 wt% and 52.5 wt%). While there is no specific indication in D6 to lower the amount of ethylene in the dispersed phase of example 3 of D6, the Board finds that a skilled person in the light of the whole disclosure of the document discussed above would have considered heterophasic polypropylene composition with an ethylene content of the dispersed phase within the general range of 40 wt% or higher to constitute alternative compositions to those already disclosed in the examples. In the present situation wherein no surprising effect was shown for the ethylene content in the patent in suit and the ethylene content of example 3 of D6 (52.5 wt%) is close to the upper value of the range (28-50 wt%) defined in claim 1 of the main request, the Board concludes that the selection of an ethylene content of 40 wt% up to 50 wt% would have been obvious for the skilled person aiming at obtaining further moulded articles.

2.12 The respondent argued that D6 itself would teach the skilled person not to lower the ethylene content of the polymer (B) as the article from comparative example 3 obtained with 36.6 wt% ethylene would have a drop height (2.9 m at room temperature) that was worse than that of the article from example 3 (>5 m at room temperature) with 52.5 wt% ethylene in the polymer (B) (rejoinder, item 27). It is first noted that the ethylene content of comparative example 3 of D6 is below the value of 40 wt% or higher taught in that document. Moreover, it was not shown in how far the

comparison of the articles of comparative example 3 and example 3 could validly show a causality between drop height properties and ethylene content in polymer (B). D6 contains in particular other examples that were prima facie prepared under very similar conditions as example 3 referred to by the respondent and which do not show such a deterioration of the drop height property. In particular, example 1 contains 52 wt% ethylene and has a drop height of 2.8 m at room temperature, close to the value reported for comparative example 3. The Board therefore does not find that D6 would have taught away from reducing the ethylene content of polymer (B) as long as it is higher than 40 wt% as taught in that document.

- 2.13 With respect to the presence or absence of phthalate in the article and in the heterophasic polypropylene composition (feature (iii)), the parties did not dispute that the catalyst used for the preparation of the heterophasic polypropylene composition of example 3 in D6 contains a phthalate. D6 indeed addresses the catalyst system in paragraphs 69-87 and describes the catalysts that can be used in terms of preferred features. Even if it is clear from paragraphs 74-78 that phthalic acid ester containing catalysts are preferred, there is no requirements about the use of these specific catalysts in D6.
- 2.14 Given the lack of evidence for the presence of an effect resulting from the selection of phthalate free catalysts in the patent in suit and the general teaching of D6 concerning the catalysts that can be used in the polymerisation process, the Board finds that a skilled reader of D6 would have expected to obtain alternative moulded articles when using phthalate free catalysts in the general process of D6.

In this respect, it was also not disputed that internal donors not containing phthalates were known in the art and were available to the skilled person for the preparation of heterophasic polypropylene composition and their resulting moulded articles.

2.15 Distinguishing feature (iv) concerns the inequation laid out in claim 1 of the main request. It is apparent from paragraphs 27 and 29 of the patent in suit that the inequation of claim 1 of the main request is meant to establish a link between the impact performance and the stiffness performance of an injection moulded pail for which however little information is given in the patent in suit. The respondent argued that examples 1 and 2 and comparative example 1 of the patent in suit showed an improved top load (example 1) and drop height (example 2) in favour of the articles according to claim 1 of the main request (rejoinder, item 29). It was however established above that the examples and comparative examples of the patent in suit, because of their different process conditions, could not establish a causal link between one of the distinguishing features (i)-(iv) and any effect. On this basis, the Board can only conclude that the comparison mentioned by the respondent cannot show an improved drop height and top load linked to feature (iv).

2.16 There is no further information in the patent in suit from which it could be concluded that validating the inequation of formula (I) would imply the selection of specific components or polymerisation conditions that were not known from the prior art, in particular from D6. The inequation is seen as the result of a choice in the properties of the heterophasic polypropylene composition and in the definition of a moulded article which, in the absence of anything special regarding

that choice or any special measures that should be undertaken in order to meet the condition, can only be seen as the result of an arbitrary selection not going beyond the normal skills of the skilled person.

- 2.17 For these reasons the Board concludes that claim 1 of the main request lacks an inventive step over example 3 of D6 taken as the closest prior art.

First auxiliary request

3. Inventive step

- 3.1 Claim 1 of the first auxiliary request corresponds to claim 1 of the main request with the further product-by-process feature "wherein the propylene polymer composition is produced in a sequential multi-reactor polymerization process in the presence of

- a) a Ziegler-Natta catalyst comprising compounds (TC) of a transition metal of Group 4 to 6 of IUPAC, a Group 2 metal compound and an internal donor, wherein said internal donor is citraconate;
- b) a co-catalyst (Co), and

c) an external donor (ED)".

- 3.2 The feature added in claim 1 of the first auxiliary request concerns the selection of a specific reactor polymerisation process and defines the catalyst in particular in that it contains citraconate as internal donor. The respondent argued that the amendment of claim 1 characterized the claimed moulded article as such, as catalysts for producing polypropylenes, including heterophasic propylene compositions as defined in claim 1, were consumed during preparation to a very small extent, whereby the catalyst residues, i.e. their decomposition products, ended up in the

final article (rejoinder, item 45). The respondent, however, did not provide evidence that the definition of the moulded article of claim 1 by that product-by-process feature resulted in a moulded article having properties which were different from those of the moulded article of claim 1 of the main request. The Board therefore comes to the conclusion that the problem that can be formulated for claim 1 of the first auxiliary request remains the provision of further moulded articles.

3.3 Citraconate-based internal donors are presented as known internal donors in the patent in suit itself (the examples use bis(2-ethylhexyl)citraconate provided by SynphaBase) and these internal donors are also known from D8 (page 22, line 19 to page 23, line 7). The respondent argued that D8 was not relevant because the passage on page 3, lines 1-7 would exclude the preparation of heterophasic polypropylenes. While D8 seems to refer only to the production of propylene copolymers, the passage referred to in D8 only indicates that monophasic propylene copolymers are preferable. Furthermore, there is no link in this passage between the preferred preparation of monophasic propylene copolymers and the use of citraconates as internal donors of the catalyst. The Board therefore does not find that D8 teaches that the known citraconates cannot be used as internal donors of catalysts in the preparation of heterophasic copolymers. On that basis, the skilled person simply looking for further moulded articles would have employed a known internal donor without exercising any inventive activity.

3.4 In view of this, the Board comes to the conclusion that claim 1 of the first auxiliary request lacks an

inventive step starting from example 3 of D6 as the closest prior art.

Second auxiliary request

4. Inventive step

4.1 Claim 1 of the second auxiliary request corresponded to claim 1 of the first auxiliary request with the further limitation of the amount of ethylene and/or an α -olefin with 4-10 carbon atoms being present in the predominantly amorphous propylene copolymer to the range of 32 to 46 wt%.

4.2 The respondent argued at the oral proceedings before the Board that the amendment in claim 1 of the second auxiliary request meant that a further selection had to be made starting from example 3 of D6 in order to come to the subject matter of operative claim 1. This cannot be followed, as the limitation in operative claim 1 does not introduce a new distinguishing feature over example 3 of D6 since it corresponds to distinguishing feature (ii) of claim 1 of the main request.

4.3 The amendment was not linked to any effect by the respondent, nor does the Board see any support for an effect resulting from the limitation introduced in claim 1 of the second auxiliary request. The problem was therefore the same as that formulated for the first auxiliary request, namely the provision of further moulded articles.

4.4 The respondent additionally argued for the first time at the oral proceedings before the Board that, if the skilled person decreased the ethylene content of example 3 of D6 to values in the range according to

claim 1, the XCS fraction would decrease to values outside the range 18.0 to 28.0 wt% thereby not resulting in an article according to claim 1. This was based on the examples of D6 which showed that a decrease in the ethylene content in component (B) from its initial value of 52.5 wt% in example 3 to values of between 36.1-37 wt% as in the comparative examples of D6 would lead to a XCS fraction of 16.3-17.5 wt%, outside the range defined in operative claim 1.

4.5 The question of inventive step with respect to the ethylene content of component (B) starting from example 3 of D6 (52.5 wt% of ethylene) was whether a skilled person would have considered working in the range of more than 40 wt% up to 46 wt%, i.e. the range generally taught for the inventive propylene compositions of D6 (higher than 40 wt% in paragraph 13, page 3, line 5) which was still relevant to operative claim 1 (32-46 wt%), while still obtaining a XCS fraction according to claim 1. For this range of interest (40-46 wt% of ethylene) the Board does not consider that a meaningful conclusion can be drawn from the examples of D6 as to the XCS fraction.

4.6 The respondent compared example 3 with comparative examples C1-C3 of D6 to argue that reducing the ethylene content in component (B) would be detrimental to the XCS fraction. The Board, however, does not see a clear trend in Table 1 of D6 that would support the respondent's argument as the XCS fraction of the compositions reported in Table 1 does not appear to correlate directly with the ethylene content of the composition. This can be seen by considering the composition of example 2, where the ethylene content is higher (54.8 wt%) than in example 3 but the XCS fraction is lower (17.6 wt%) or by considering the

compositions of examples 1 and 3, where a similar ethylene content (52 wt% in example 1 and 52.5 wt% in example 3) results in a significantly different XCS fraction (16.6 wt% in example 1 and 22.9 wt% in example 3). The Board therefore cannot accept the allegation of the respondent regarding the XCS fraction which was only submitted at the oral proceedings before the Board and was not supported by reasonable evidence.

- 4.7 In view of this, the question of obviousness remains solely linked to the selection of a component (B) having an ethylene content in the range of 32 wt% to 46 wt% as defined in claim 1 of the second auxiliary request. D6 already teaches in paragraph 13 that the ethylene content can be varied in the range of 40 wt% of higher. The reduction of the ethylene content from 52.5 wt% in example 3 of D6 to a value anywhere in the range of 40 wt% up to 46 wt% is therefore seen, as an arbitrary choice within the teaching of D6 for the same reasons as outlined for the main request. Claim 1 of the second auxiliary request therefore does not involve an inventive step starting from example 3 of D6 as the closest prior art.

Third and fourth auxiliary requests

5. Inventive step

- 5.1 Claim 1 of the third auxiliary request is identical to claim 1 of the first auxiliary request. The reasoning and conclusion on inventive step laid out for claim 1 of the first auxiliary request therefore equally apply to claim 1 of the third auxiliary request. Claim 1 of the third auxiliary request therefore lacks an inventive step starting from example 3 of D6 as the

closest prior art.

- 5.2 Claim 1 of the fourth auxiliary request is identical to claim 1 of the second auxiliary request. The reasoning and conclusion on inventive step laid out for claim 1 of the second auxiliary request therefore equally apply to claim 1 of the fourth auxiliary request. Claim 1 of the fourth auxiliary request therefore lacks an inventive step starting from example 3 of D6 as the closest prior art.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



D. Hampe

D. Semino

Decision electronically authenticated