BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [ ] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 28 April 2008

Case Number: T 0206/06 - 3.3.03

Application Number: 90312751.2

Publication Number: 0429311

IPC: C08K 3/08

Language of the proceedings: EN

Title of invention:
Polyester bottles

Patentee:
ADVANSA B.V.

Opponent:
THE DOW CHEMICAL COMPANY
EASTMAN CHEMICAL COMPANY
Shell Internationale Research Maatschappij B.V.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step - (no)"

Decisions cited:
T 0410/87

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0206/06 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 28 April 2008

Appellant: (Opponent 2)	EASTMAN CHEMICAL COMPANY P.O. Box 511 Kingsport TN 37662-5075 (US)
Representative:	Brown, Fraser Gregory James fJ Cleveland 40-43 Chancery Lane London WC2A 1JQ (GB)
Respondent: (Patent Proprietor)	ADVANSA B.V. Kruisweg 829 NL-2132 NG Hoofddorp (NL)
Representative:	Cockerton, Bruce Roger Carpmaels & Ransford 43-45 Bloomsbury Square London WC1A 2RA (GB)
Parties as of right: (Opponent 1)	THE DOW CHEMICAL COMPANY 2030 Dow Center Midland Michigan 48674 (US)
Representative:	Raynor, John Beck Greener Fulwood House 12 Fulwood Place London WC1V 6HR (GB)
(Opponent 4)	Shell Internationale Research Maatschappij B.V. Carel van Bylandtlaan 30 NL-2596 HR The Hague (NL)
Representative:	Gerbino, Angelo Jacobacci & Partners S.p.A. Corso Emilia, 8 I-10152 Torino (IT)

Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office dated 8 December 2005 and posted 23 December 2005 concerning maintenance of European patent No. 0429311 in amended form.**

Composition of the Board:

Chairman: R. Young
Members: C. Idez
E. Dufrasne

Summary of Facts and Submissions

I. The grant of European patent No. 0 429 311 in the name of Imperial Chemical Industries PLC (later Advansa B.V) in respect of European patent application No. 90 312 751.2, filed on 22 November 1990 and claiming priority of the GB patent application No 8926631 filed on 24 November 1989 was announced on 14 January 1998 (Bulletin 1998/03) on the basis of 41 claims.

Independent Claims 1, 5, 8, 12, 14, 16, 21, 23, 27, 29, 34, 39, and 40 read as follows:

"1. A bottle having walls which are made of a thermoplastic polymer which contains metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 300 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the particles.

5. A bottle having walls which are made of a polyethylene terephthalate polymer which contains particles of metallic antimony which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 100 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the particles.

8. A bottle preform having walls which are made of a thermoplastic polymer which contains metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 300 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the particles.

12. A bottle preform having walls which are made of a polyethylene terephthalate polymer which contains particles of metallic antimony which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 100 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the particles.

14. A method of making a bottle as claimed in claim 1 which method comprises (a) incorporating into a thermoplastic polymer fine particles of a reducible metal compound and a reducing agent capable of reducing the metal compound to the metal and reacting the metal compound with the reducing agent to generate the fine particles of metal and (b) forming a bottle from the resulting polymer.

16. A method of making a bottle preform as claimed in claim 8 which method comprises incorporating into a thermoplastic polymer fine particles of a reducible

metal compound and a reducing agent capable of reducing the metal compound to the metal and reacting the metal compound with the reducing agent to generate the fine particles of metal and forming a bottle preform from the resulting polymer.

21. A method of making a bottle preform from a polymer composition comprising a thermoplastic polymer which contains metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 300 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the particles, which method comprises the steps of (1) incorporating into a thermoplastic polymer fine particles of a reducible metal compound and a reducing agent capable of reducing the metal compound to the metal and reacting the metal compound with the reducing agent to generate the metal particles, and (2) injection moulding the bottle preform from the polymer composition.

23. A method of making a bottle preform from a polymer composition comprising a polyethylene terephthalate polymer which contains particles of metallic antimony which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles of metallic antimony being present in an amount of from 10 to 100 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the

particles, which method comprises the steps of (1) incorporating into a polyethylene terephthalate polymer fine particles of a reducible antimony compound and a reducing agent capable of reducing the antimony compound to antimony and reacting the antimony compound with the reducing agent to generate the particles of metallic antimony, and (2) injection moulding the bottle preform from the polymer composition.

27. A method of making a bottle from a polymer composition comprising a thermoplastic polymer which contains metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 300 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the particles, which method comprises the steps of (1) incorporating into a thermoplastic polymer fine particles of a reducible metal compound and a reducing agent capable of reducing the metal compound to the metal and reacting the metal compound with the reducing agent to generate the metal particles, (2) injection moulding a bottle preform from the polymer composition, and (3) subjecting the bottle preform to reheating and blow moulding a bottle from the reheated preform.

29. A method of making a bottle from a polymer composition comprising a polyethylene terephthalate polymer which contains particles of metallic antimony which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles

of metallic antimony being present in an amount of from 10 to 100 ppm based on the weight of the polymer such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of the particles, which method comprises the steps of (1) incorporating into a polyethylene terephthalate polymer fine particles of a reducible antimony compound and a reducing agent capable of reducing the antimony compound to antimony and reacting the antimony compound with the reducing agent to generate the particles of metallic antimony, (2) injection moulding a bottle preform from the polymer composition, and (3) subjecting the bottle preform to reheating and blow moulding a bottle from the reheated preform.

34. A thermoplastic polyester suitable for the manufacture of blow moulded bottles which has been made by a process including a solid state polymerisation step said polyester containing metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 300 ppm based on the weight of the polyester such that the reheat time of the polyester is less than the reheat time of the polyester in the absence of the particles.

39. The use of metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, in a thermoplastic polyester suitable for the manufacture of blow moulded bottles, the metal particles being present in an amount of from 10 to 300 ppm by weight based on the weight of the

polyester to reduce the reheat time of the polyester relative to that of a polyester not containing the metal particles.

40. A method of making a thermoplastic polyester containing metal particles as claimed in any one of claims 34 to 38 which method comprises (a) incorporating into a thermoplastic polyester fine particles of a reducible metal compound and a reducing agent capable of reducing the metal compound to the metal and reacting the metal compound with the reducing agent to generate the metal particles."

The remaining claims were dependent claims.

II. Four Notices of Opposition were filed against the patent, as follows:

(i) by The Dow Chemical Company (Opponent I), on 12 October 1998, on the grounds of lack of novelty and lack of inventive step (Article 100(a) EPC), and of Article 100(b) EPC,

(ii) by Eastman Chemical Company (Opponent II), on 13 October 1998 on the grounds of lack of novelty and lack of inventive step (Article 100(a) EPC), and of Article 100(b) EPC,

(iii) by Hoechst Trevira GmbH & Co. KG (Opponent III), on 14 October 1998 on the grounds of lack of novelty and lack of inventive step (Article 100(a) EPC), and of Article 100(b) EPC, and

(iv) by Shell Internationale Research Maatschappij B.V.

(Opponent IV), on 14 October 1998, on the grounds of lack of novelty and lack of inventive step (Article 100(a) EPC).

The objections were supported *inter alia* by the following documents:

E1: EP-B1-0 061 414;

E2: US-A-4 499 226;

E4: US-A-4 408 004;

E5: US-A-3 497 477; and

E22: Information concerning the synthesis of CLEARTUF 7202 and 8006.

III. By a decision announced orally on 21 November 2001, and issued in writing on 18 December 2001, the Opposition Division revoked the patent.
The decision was based on Claims 1 to 5 submitted as main request at the oral proceedings of 21 November 2001.

Independent Claim 1 read as follows:

"Use in a bottle preform having walls which are made of a thermoplastic polymer, of metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, the particles being present in an amount of from 10 to 300 ppm based on the weight of the polymer, to reduce the reheat time

of the polymer relative to the reheat time of the polymer in the absence of the particles".

Claims 2 to 5 were dependent claims.

In its decision, the Opposition Division held that the patent in suit disclosed the invention in a manner sufficiently clear and complete for it to be carried out by the skilled person, but revoked the patent on the grounds that it did not meet the requirements of Article 54 EPC.

IV. A Notice of Appeal was filed on 21 February 2002 by the Appellant (Patent Proprietor) with simultaneous payment of the prescribed fee.

V. With its letter dated 2 February 2004, Opponent III withdrew its opposition.

VI. In its decision T 326/02 of 11 May 2004, the Board of Appeal considered that the first auxiliary request submitted at the oral proceedings of 11 May 2004 met the requirements of Article 54, 83, 84, 123(2) and 123(3) EPC and decided to set aside the decision under appeal and to remit the case to the first instance for further prosecution on the basis of that auxiliary request.

Claim 1 of that auxiliary request read as follows:

"Use in a bottle preform having walls which are made of a thermoplastic polymer, of metal particles which are sufficiently fine for them not to be visible to the eye and which intrinsically absorb radiation in the

wavelength region 500 nm to 2000 nm, the particles being present in the thermoplastic polymer in an amount of from 10 to 300 ppm based on the weight of the polymer, to reduce the reheat time of the polymer relative to the reheat time of the polymer in the absence of the particles".

Claims 2 to 5 were dependent claims.

VII. By an interlocutory decision announced orally on 8 December 2005 and issued in writing on 23 December 2005, the Opposition Division decided that the patent could be maintained on the basis of Claims 1 to 5 submitted as first auxiliary request on 11 May 2004.

According to the decision of the Opposition Division, all the Parties agreed that document E4 would represent the closest state of the art.

Starting from E4 the technical problem was seen as to provide an alternative method to the addition of carbon black in order to improve the reheat properties of polyester preforms.
According to the decision, the skilled person faced with the teaching of E4 would have no incentive to look at metal particles. The skilled person would rather have been discouraged from thinking of metals as alternatives to carbon black, since as shown in documents E1 and E5 antimony particles were known to cause problems such as haze or colour increase in polyesters.

VIII. Notice of Appeal was filed on 13 February 2006 by Opponent II with simultaneous payment of the prescribed fee.

IX. In its Statement of Grounds of Appeal filed on 2 May 2006, the Appellant argued essentially as follows:

(i) The skilled person would have understood from E4 that the improvement in the observed reheat rates were attributable to the presence of antimony in the disclosed polyester composition.

(ii) Although there was no explicit statement in E4 stating that antimony particles improved the reheat rate, the skilled person would have realised from the relative comparison with the clear bottles of E4 that antimony was responsible for the improved reheat rate.

(iii) In decision T 360/02, the Board of Appeal had decided that the subject-matter of Claims 1 to 5 was novel over the disclosure of E4 because E4 did not clearly and unambiguously disclose that the shorter reheat time of Cleartuf 7202 was due to the difference in metal particle content between Cleartuf 7202 and the high clarity polyester, or therefore, that there was a link between the metal particle content of the polyester and their relative reheat time (cf. point 8.1.11 of the Reasons).

(iv) The Opposition Division had considered that starting from E4 the objective technical problem was to provide an alternative method (instead of the addition of carbon black) to improve the reheat properties of polyester preforms.

(v) The skilled person would however be faced with the objective technical problem of explaining why, when exposed to IR radiation, the reheat rate of Cleartuf 7202 was faster than the control.

(vi) It was wrong of the Opposition Division to have interpreted E4 when assessing inventive step as strictly as the Board of Appeal did when assessing novelty.

(vii) E4 clearly addressed the problem of reducing reheat time in a PET polyester (cf. to column 1, lines 12 to 26).

(viii) Thus, on the basis of E4, the skilled person would learn that the low reheat rate due to a low absorption of energy was associated with high clarity, i.e. that clarity influenced reheat rate.

(ix) According to E4, Cleartuf 7202 was "non-high clarity" whereas the other polyesters of E4 were "high clarity". It was further clear from E4 that Cleartuf 7202 comprised antimony metal particles.

(x) The skilled person would also know from documents El, E2, E5 and E10 (US-A-3 732 182) that the presence of antimony metal particles affected clarity.

(xi) Furthermore, E4 disclosed that the high clarity articles had no antimony metal particles (cf. Table 1).

(xii) Thus, taking all of these facts into consideration, the skilled person would have logically

understood that the presence of antimony particles increased reheat rates.

(xiii) Therefore the patent in suit lacked an inventive step.

X. In its letter dated 8 September 2006, the Respondent (Patent Proprietor) argued essentially as follows:

(i) Concerning the determination of the oxidation state of antimony in Cleartuf 7202:

(i.1) The Opponents had stated that the amount of antimony in Cleartuf 7202 was 52 ppm or 78 ppm, depending on the date of manufacture, and the Patent Proprietor had no reason to doubt these figures.

(i.2) Simple elemental analysis was only capable of determining the concentration of antimony element in the polymer, rather than its oxidation state.

(i.3) It was only by using document E22 that it would have been possible to infer that the antimony present in the polymer was in oxidation state zero. Neither E22 nor the method of manufacture of Cleartuf 7202 was, however, available at the priority date of the patent in suit.

(i.4) Thus, the skilled person could not have been able to determine that the antimony present was in the form of antimony metal.

(i.5) Thus, the Respondent did not accept that the public availability of Cleartuf 7202 also made

available all aspects of its composition, and specifically the oxidation state of the antimony present therein.

(i.6) The technical experts of the Appellant (cf. declaration of Mr Germinario of 7 October 2005) and the Respondent (cf. declarations of Mr Dale and Mr Scantelbury, both of 7 October 2005) disagreed on this point.

(i.7) The fact that the scientists at Eastman Chemical were indeed capable of conducting this determination test before the priority date of the opposed Patent, did not prove that these techniques were both routine and available at the priority date of the patent in suit.

(i.8) It also appeared that the Appellant was not willing to divulge the method it used to conduct the test. As was evident from Dr Germinario's declaration and the supporting documents, essential elements of the test had been blanked out.

(ii) Concerning inventive step:

(ii.1) The problem addressed in the patent in suit was to reduce the time required for the reheat step in bottle manufacture.

(ii.2) There was no suggestion in the prior art that metal particles might have any utility. The only explicit disclosure of metal particles in PET was that they were an undesirable relic of polymer manufacture, and should be avoided or minimised (cf. E5).

(ii.3) Documents E3 and E4 addressed a problem similar to that of the opposed Patent, but there was no disclosure or suggestion whatsoever to use metal particles to solve this problem. E4 referred only to the use of carbon black in amounts of less than l0 ppm (column 2, lines 57-60 and column 4, lines 10-14 of E4).

(ii.4) The Appellant's argumentation remained fundamentally dependent on a comparison of polymers in E4, namely the "non-high clarity" control example (Cleartuf 7202) and the "high clarity" example (see table II in E4).

(ii.5) The Appellant has failed to appreciate the significance of the findings in T 326/02 that there was no indication in E4 that the observed difference in "80-second heat temperatures" was due to the presence or absence of metal particles.

(ii.6) The considerations made in decision T 326/02 ,(Reasons point (8.1.14(d) meant that, there could be no suggestion that there was a link between the presence of metal particles and reduced reheat time, and therefore no suggestion from E4 to use metal particles to reduce reheat time.

(ii.7) Thus, the skilled person reading E4 would have had no motivation whatsoever to use metal particles in the manner required by Claim 1 of the patent in suit when addressing the problem to be solved. The claimed subject-matter could not therefore be obvious.

(ii.8) Furthermore, the totality of the prior art teaching was that the presence of metal particles was to be avoided.

(ii.9) The Appellant had defined the objective technical problem as "explaining why, when exposed to IR radiation, the reheat rate of Cleartuf 7202 is faster than the control".

(ii.10) The problem and solution approach was however not concerned with explaining a mechanism for a phenomenon which might or might not have been observable in the prior art.

(ii.11) The Appellant had essentially argued that the skilled person knew from E4 that high clarity articles had long reheat times, that a lack of clarity led to reduced reheat rates, and that metal particles reduced clarity, and that therefore he would have attributed the "non-high clarity" of Cleartuf 7202 to metal particles.

(ii.12) However, the Appellant had forgotten that a lack of clarity could be caused by a number of factors.

XI. The arguments presented by the Appellant in its letter dated 27 February 2008 may be summarized as follows:

(i) Claim 1 differed from the carbon black embodiments of E4 in that metal particles are used (in an amount of 10 to 300 ppm), rather than carbon black particles in an amount of 0.1 to l0 ppm.

(ii) Thus, the objective problem could be formulated as simply providing an alternative way of increasing the reheat rate of a preform in thermoplastic polymer bottle blowing.

(iii) Starting from E4, the skilled person seeking an alternative way of increasing reheat rate would naturally have considered Cleartuf 7202, as this preform material had already been shown in E4 to have a higher reheat rate than the high clarity comparative example.

(iv) Thus, the skilled person would naturally have substituted Cleartuf 7202 for the carbon black containing polyester of E4 in the expectation of obtaining an improved reheat rate.

(v) It would have been hence carrying out the use of Claim 1. He would have been using metal particles in a thermoplastic polymer preform to increase reheat rate. The means of realisation and the technical purpose would be the same, irrespective of whether the person had knowledge of the presence of metal particles in the Cleartuf 7202.

(vi) Using a polymer composition of the type Cleartuf 7202 to improve reheat rate over the high clarity polyester was inherently the same technical realisation for the same technical result as required by Claim 1 of the main request.

(vii) Thus the subject-matter of Claim 1 lacked an inventive step even if the skilled person wouldn't have

been able to establish the oxidation state of antimony in Cleartuf 7202.

(viii) Nevertheless, if it were assumed that the "invention" lay in discovering that it was the presence of metal particles which gave the technical result (reheat rate improvement), then the oxidation state of antimony would become a relevant consideration.

(ix) The Appellant had provided stoichiometric equations and calculations that showed that significant amounts of antimony were present in Cleartuf 7202 in oxidation state zero.

(x) This knowledge would be sufficient for the skilled person to infer that metal particles were very likely present and would be the cause of an increased reheat rate.

(xi) It was maintained that the oxidation state of antimony could have been determined at the priority date by X-ray diffraction.

(xii) Thus the metal particulate content of Cleartuf 7202 was made available at the priority date by its commercial availability.

(xiii) The skilled person would have immediately identified an increase in reheat rates in Cleartuf 7202 as almost certainly being associated with the presence of metal particles, even if other micro-structural or compositional features could also contribute.

(xiv) Metals were well known to be infra-red absorbers.

(xv) Hence there could be no invention in discovering that metal particles contributed to increased reheat rate in polyesters such as Cleartuf 7202.

(xvi) Starting from E4 and the Cleartuf 7202, it was only the clear and unmistakable association of the increase in reheat rate being due to the presence of metal particles in Cleartuf 7202 and a corresponding lack of particles in the "high clarity polyester" comparative example which was lacking in comparison to Claim 1 of the patent in suit.

(xvii) The only thing missing therefore was a definitive explanation for the difference in reheat rates.

(xviii) Thus the technical problem might be seen in providing an explanation for this difference in reheat times.

(xix) Once the skilled person had established that antimony particles were present, it would be obvious that they would contribute to an increase of the reheat rate.

(xx) If one started from E4 alone, the technical problem would be to provide an alternative way of increasing the reheat rates.

(xxi) E4 taught that specific types of materials could be used to increase reheat rates of polyester resins

and a preferred material was carbon black (col. 4, lines 4 to 9).

(xxii) Thus, it was implicit that other IR absorbing materials might be used in place of carbon as particles to achieve an improved reheat.

(xxiii) It would have been obvious to use one or more metallic materials in place of carbon because metals were well known to be IR absorbers.

XII. Oral proceedings were held before the Board on 28 April 2008 in the absence of Opponent I and Opponent IV.

At the oral proceedings the discussion essentially focussed on the assessment of inventive step, taking document E4 as the closest state of the art.
While essentially relying on the arguments presented in that respect in the written phase of the appeal, the Parties made additional submissions which may be summarized as follows:

(i) By the Appellant:

(i.1) Starting from E4, technical problem was to provide alternative to carbon black in order to reduce the reheat time in polyester preforms.

(i.2) There was no improvement in other properties, such as haze.

(i.3) Cleartuf 7202 was a polyester according to the invention and was not a high clarity polyester.

(i.4) Since haze was not an issue, documents E1 and E5 could not be considered as disincentive for the use of metal particles.

(i.5) The aim of E4 was to provide polyester having low haze and improved reheat time. According to E4, low haze corresponded to a value of less than 3 as determined by Hunter haze lab instrument.

(i.6) The values indicated in the patent in suit (Table 1) for haze were however above 3. Furthermore, the haze values were only indicated in the patent in suit for polyesters containing up to 40 ppm metal particles. Claim 1 however referred to polyester containing up to 300 ppm metal particles.

(i.7) Even if it was not the same apparatus which was used in the patent in suit and in E4 for determining the haze, it was evident that the yellowness of Cleartuf 7202 was much higher than that of the high clarity polyester containing carbon black particles of E4.

(ii) By the Respondent:

(ii.1) The technical problem was to be seen in the shortening of the reheat time while maintaining an acceptable haze level.

(ii.2) The method used for determining the haze in E4 differed from the method used in the patent in suit. There was no basis for comparing the haze value in E4 and those in the patent in suit.

(ii.3) Yellowness was different from haze. It referred to coloration of the preform while haze related to the light scattering due, for example, to the presence of metal particles.

(ii.4) The reference to a low haze in E4 should be considered at the time of E4. The low haze level in E4 would not necessarily correspond to acceptable haze level at the priority date of the patent in suit.

(ii.5) Metal particles were presented in the prior art (E1 or E5) as undesirable relics of the polyester manufacture.

(ii.6) There was hence no incentive in the prior art positively to use metal particles, i.e. in order to increase the reheat rate while maintaining an acceptable haze level.

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

The Respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. *Procedural matters:*

As mentioned above in paragraph XII, Opponents I and IV, although duly summoned, were not represented at the

oral proceedings. In accordance with Rule 115(2) EPC, the proceedings were continued without them.

3. *Problem and solution*

3.1 As indicated above in paragraph III, all the parties agreed that document E4 would represent the closest state of the art.

3.2 Document E4 relates to polyester compositions containing small amounts of an infrared absorbing material. These compositions have improved infrared absorption and yet high clarity, neutral hue and low haze values, and are useful in molding operations such as the blow molding of beverage bottles. In that respect, these compositions exhibit improved heat-up rates through the use of an infrared absorbing material such as preferably carbon black and still maintain their high clarity and low haze values, i.e. expressed as Hunter haze number of less than 3.

3.3 Although document E4 generally refers to the presence of "infrared absorbing materials" in the polyester compositions, it only explicitly discloses the use of carbon black as infrared absorbing material.

3.4 As can be deduced from the description of the patent in suit its aim is to provide polyester compositions useful in the manufacture of bottles by blow molding having improved reheat time while retaining an acceptable haze level (cf. page 2, lines 3 to 4, 26 to 28).

3.5 In this connection, the Board notes that, while E4 and the patent in suit are equally concerned with the improvement of the reheat time of polyester compositions during blow molding, their respective objectives in terms of haze of the compositions would however appear to differ.

3.6 While according to document E4 the maintenance of a low haze as expressed by an Hunter haze value of less than 3 is at stake, the objective of the patent in suit is described as retaining of an "acceptable level of haze".

3.7 In this connection, the Board notes that, while the patent in suit indicates that the haze is determined by using a Gardener [sic] Haze meter (cf. page 4, lines 3 to 4), it does not specify in terms of Gardener haze what is regarded as an "acceptable haze".

3.8 Independently of the question as to whether haze values determined by a Hunter haze test are comparable with haze values determined by a Gardener Haze meter, the Board observes that the haze values indicated in Table 1 of the patent in suit show that the haze steadily increases when the amount of metallic particles in the polyester increases. The Board further observes that Table 1 only indicates the haze of polyester compositions containing up to 39.6 ppm of antimony particles in the metallic state, while the amount of metallic particles according to Claim 1 might be as high as 300 ppm, so that it could be fairly assumed that the haze of compositions containing such high amounts of metallic antimony would be much higher than the haze value observed for composition comprising only 39.6 ppm (i.e. 5.5 in terms of Gardener haze).

3.9 Thus, under these circumstances the Board can only come to the conclusion that the term "acceptable haze" is to be construed as corresponding to a level of haze which was generally accepted at the priority date for polyester compositions used in the manufacture of bottles (e.g. such as Cleartuf 7202), i.e. well above that of high clarity polyester compositions.

3.10 Thus, the technical problem to be solved by the patent in suit would appear to be less demanding in terms of achievement of haze properties than the problem said to be solved by the compositions according to E4.

3.11 It thus follows that the problem underlying the patent in suit cannot be formulated as the provision of an alternative to the high clarity compositions disclosed in E4, but merely as improving the reheat time of polyester compositions used in blow molding of polyester bottles while maintaining their haze within acceptable limits.

3.12 According to the patent in suit, this problem is solved by the use of metal particles in polyester compositions as defined in Claim 1 of the patent in suit.

3.13 Examples 3 to 6 of Table 1 show that a higher reheat temperature for the same heating time could be obtained with compositions comprising antimony metallic particles in an amount within Claim 1 of the patent in suit. The Board nevertheless observes that the improvement in reheat properties linked to an increase of the metallic antimony amount is accompanied by a concomitant increase in the haze of the polyester

composition. Under the proviso that this increase in the haze is considered as remaining within acceptable limits, it is credible to the Board that the claimed measures provide an effective solution to the technical problem.

4. *Inventive step*

4.1 It remains to be decided whether the proposed solution was obvious in view of the relevant prior art i.e. E4, E1 and E5.

4.2 As can be derived from document E4, infrared absorbing materials might be used in polyester compositions in order to improve their reheat rate.

4.3 In that respect, there can be no doubt in the Board's view, that metallic particles would fall under the definition of such infrared absorbing materials.

4.4 Nevertheless, it is known in the art, as also admitted by the Respondent (cf. letter of 8 September 2006, page 5, point 19) that the presence of metallic particles such as metallic antimony in polyesters compositions leads to an increase of haze of the polyesters containing them (cf. E1, page 2, lines 11 to 13; Table III, Example 1; E5, column 1, lines 15 to 20).

4.5 These considerations are totally in line with the experimental results presented in Table 1 of the patent in suit, which show that the improvement of the reheat time is made at the cost of a concomitant increase in the haze of the polyester composition.

4.6 Under these circumstances it thus follows that for the person skilled in the art aware of the teachings of E4 and E1 and/or E5, and aiming to solve the technical problem, a compromise is to be made between the expected reduction of the reheat time and the expected increase in haze due to the presence of metallic particles such as metallic antimony in the polyester composition.

4.7 In the Board's view, it would be part of the activities deemed normal for the person skilled in the art to optimise the content of metallic particles such as metallic antimony in the polyester composition in such a way as to reach an acceptable compromise between improvement of reheat time and degradation of haze (cf. also T 410/87 of 13 July 1989 (not published in OJ EPO; Reasons point 3.4).

4.8 Consequently, the Board comes to the conclusion that the subject-matter of Claim 1 does not meet the requirements of Article 56 EPC.

4.9 This conclusion cannot be altered by the argument of the Respondent in view of the considerations made in the previous decision T 326/02 (point 8.1.14(d) thereof) according to which there is no indication in E4 itself of a link between metal particles content and reheat time, and that the attaining of a reduction of reduction of reheat time by the use of metal particles could not have been noticed from E4, since there was no adequate basis for comparison in E4.

4.9.1 The Board however notes that these considerations have been made in the context of assessment of the novelty

of the subject-matter of Claim 1, and that as mentioned in T 326/02 (point 8.1.14 (b)) inventive step considerations should be clearly distinguished from novelty considerations.

4.9.2 Thus, while in the context of assessment of novelty, it has been considered in T 326/02 (cf. point 8.1.11) that E4 did not disclose clearly and unambiguously that the shorter reheat time of Cleartuf 7202 is due to the difference in metal content between Cleartuf 7202 and the high clarity polyester (cf. Table II of E4) or therefore that there was a link between the metal particle content of the polyesters and their metal content, this does not invalidate the general teaching of E4 according to which the addition of infrared absorbing materials into polyester compositions would improve their reheat time.

5. Since for the reasons indicated above, the main request of the Respondent is not allowable, there is no need for the Board to deal with the question as to whether it would have been possible or not to determine the presence and the amount of metallic antimony in the polyester Cleartuf 7202 before the priority date of the patent in suit.

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:

E. Görgmaier R. Young