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**Datasheet for the decision
of 16 February 2012**

Case Number: T 1248/08 - 3.3.05
Application Number: 99309919.1
Publication Number: 1008564
IPC: C03C 17/00, C03C 17/34
Language of the proceedings: EN

Title of invention:

Coating solution for forming a film for cutting off solar radiation and the film formed therefrom

Applicant:

SUMITOMO METAL MINING COMPANY LIMITED

Opponent:

Akzo Nobel Coatings International N.V.

Headword:

Coating solution/SUMITOMO METAL MINING CO. LTD

Relevant legal provisions:

EPC Art. 54, 123(2)(3), 112(1)a, 111(1), 87(1)
EPC R. 139

Keyword:

"Added subject-matter (main request, auxiliary requests 1 to 3) (yes) - illegible number in the application as originally filed - value not unambiguously derivable from graphical representation - a survey: not an acceptable evidence for supporting the most probable value - balance of probability: not an acceptable standard for determining the actual value - priority document cannot be used as a basis for corrections"
"Referral to the EBA (no) - question already answered by the jurisprudence"
"Disclaimer (auxiliary request 4): not allowable"
"Added subject-matter (auxiliary request 5) (no) - range construction allowable - critical feature (weight ratio) not inextricably linked with further features - no inadmissible intermediate generalisation"
"Extension of protection (auxiliary request 5) (no)"
"Priority (validly claimed) - priority document was first application of the invention - earlier document D1 of same applicant not disclosing the same invention"
"Novelty having regard to D1 (auxiliary request 5) (yes)"
"Remittal for further prosecution"

Decisions cited:

G 0001/93, G 0011/91, G 0002/03, T 0113/86, T 0383/88,
T 0581/91, T 0723/02, T 1239/03, T 0714/00, T 0203/83

Catchword:

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Case Number: T 1248/08 - 3.3.05

DECISION
of the Technical Board of Appeal 3.3.05
of 16 February 2012

Appellant: SUMITOMO METAL MINING COMPANY LIMITED
(Patent Proprietor) 11-3, Shinbashi 5-chome
Minato-ku
Tokyo 105 (JP)

Representative: Jones, Nicholas Andrew
Withers & Rogers LLP
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London SE1 2AU (GB)

Respondent: Akzo Nobel Coatings International N.V.
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Representative: Heinen, Annemieke Willemine
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 24 April 2008
revoking European patent No. 1008564 pursuant
to Article 101(3)(b) EPC.

Composition of the Board:

Chairman: G. Rath
Members: H. Engl
S. Hoffmann

Summary of Facts and Submissions

- I. This appeal is from the decision of the opposition division to revoke European patent EP-B-1 008 564.
- II. The documents cited in the opposition procedure included the following:
- D1: EP-A-0 943 587
- D2: D.E. DYSHEL and A.A. ROGOZINSKAYA, "*Structure Formation of Thin-Film Resistance Composites Based on Alloyed Tin Dioxide*", Powder Metallurgy and Metal Ceramics, Vol. 37, No. 5-6, 1998, pages 331 to 335 (translated from: Poroshkovaya Metallurgiya, No. 5-6, pages 105 to 110, May-June 1998, Ukraine)
- III. The European patent which was opposed under the grounds of opposition according to Article 100(a) and 100(c) EPC was revoked in the opposition procedure. The opposition division rejected the main request, directed to the claims as granted, under Article 123(2) EPC because of an unallowable disclaimer in claims 1 and 8; the first to fifth auxiliary requests were rejected because of lack of novelty having regard to D1.
- IV. The notice of appeal of the patentee (appellant) was filed with letter dated 20 June 2008. The grounds for appeal were submitted with a letter dated 1 September 2008, including a new main request and auxiliary requests 1 to 3 and an amended Table 1 of the description.

V. The respondent (opponent) filed its observations with a letter dated 15 December 2008.

VI. In an Annex to the summons for oral proceedings pursuant to Article 15(1) RPBA the board raised objections under Article 123(2) EPC against the proposed amendment in Table 1 and against consequential amendments in claim 1 of all the requests.

The board also provisionally commented on the validity of the priority claim and on the question of novelty having regard to D1 and D2.

The possibility of a remittal of the case to the department of first instance for further prosecution was indicated.

VII. Under cover of a letter dated 16 February 2012, the appellant filed additional comments and new claims in accordance with a main request and auxiliary requests 1 to 6.

VIII. The independent claims in accordance with these requests are worded as follows:

Main request:

"1. A coating solution for forming a film for cutting off heat radiation which contains fine particles of LaB_6 and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO), provided that the weight ratio of LaB_6 to ITO is from 0.62:99.38 to 10.7:89.3 and the weight ratio of LaB_6 and ATO is from 1.10:98.9 to 13.8:86.2."

"6. A film for cutting off solar radiation which is formed by coating at least one side of a base with a solution containing fine particles of LaB_6 and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO), provided that the weight ratio of LaB_6 to ITO is from 0.62:99.38 to 10.7:89.3 and the weight ratio of LaB_6 and ATO is from 1.10:98.9 to 13.8:86.2."

First auxiliary request:

Claim 1 differs from claim 1 of the main request in that the passage

", and wherein said hexaboride, ITO and ATO particles have a diameter of 200 nm at the largest"

is inserted at the end of the claim. The same amendment is made in claim 6 which is renumbered as claim 5.

Second auxiliary request:

Claim 1 differs from claim 1 of the main request in that the passage

", and wherein the base is a sheet of glass, or a sheet or film of a transparent resin"

is inserted at the end of the claim. The same amendment is made in independent claim 6.

Third auxiliary request:

Claim 1 differs from claim 1 of the first auxiliary request in that the passage

" , and wherein the base is a sheet of glass, or a sheet or film of a transparent resin"

is inserted at the end of the claim. The same amendment is made in independent claim 5.

Fourth auxiliary request:

"1. A coating solution for forming a film for cutting off heat radiation which contains fine particles of LaB_6 and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO) in a weight ratio of from 0.1:99.9 to 90:10, provided that the weight ratio of LaB_6 to ATO is not 18.6:81.4."

"6. A film on a base for cutting off solar radiation which is formed by coating at least one side of the base with a solution containing fine particles of LaB_6 and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO) in a weight ratio of from 0.1:99.9 to 90:10, provided that the weight ratio of LaB_6 to ATO is not 18.6:81.4."

Fifth auxiliary request:

"1. A coating solution for forming a film for cutting off heat radiation which contains fine particles of LaB_6 and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO), provided that the weight ratio of LaB_6 to ITO is from 0.1:99.9 to

10.7:89.3 and the weight ratio of LaB₆ to ATO is from 0.1:99.9 to 13.8:86.2."

"6. A film on a base for cutting off solar radiation which is formed by coating at least one side of the base with a solution containing fine particles of LaB₆ and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO), provided that the weight ratio of LaB₆ to ITO is from 0.1:99.9 to 10.7:89.3 and the weight ratio of LaB₆ to ATO is from 0.1:99.9 to 13.8:86.2."

Sixth auxiliary request:

"1. A coating solution for forming a film for cutting off heat radiation which contains fine particles of LaB₆ and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO), provided that the weight ratio of LaB₆ to ITO or ATO is from 0.1:99.9 to 9.1:90.9."

"6. A film on a base for cutting off solar radiation which is formed by coating at least one side of the base with a solution containing fine particles of LaB₆ and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO), provided that the weight ratio of LaB₆ to ITO or ATO is from 0.1:99.9 to 9.1:90.9."

IX. A further submission of the appellant was received with letter dated 13 February 2012. It included the following documents:

- A1: A paper by Kentaro Utsumi and Hitoshi Iigusa, entitled "*The Effect of SnO₂ Concentration on the Electrical and Optical Properties of In₂O₃-SnO₂ Films*", in Japanese;
- A2: N. Naghavi et al., "*On the electrochromic properties of antimony-tin oxide thin films deposited by pulsed laser deposition*", Solid State Ionics 156 (2003), pages 463 to 474;
- A3: EP-B1-0 795 565;
- A4: EP-B1-1 227 070;
- A5: Annex 1 (copy of page 24 of the patent application as originally filed);
- A6: Annex 2 (an e-mail survey);
- A7: A witness statement concerning Annex 2, by Mr Nicholas Jones, dated 13 February 2012; and
- A8: US-B1-6 319 613.
- X. Oral proceedings took place on 16 February 2012 in the absence of the respondent, who had previously announced that it would not attend. The appellant submitted, as a further auxiliary request, a question to be referred to the Enlarged Board of Appeal.
- XI. The appellant essentially argued as follows:

Amendments

The proposed value of "0.09" in example 1 of Table 1 was allowable because it was clearly and unambiguously derivable from the application documents as originally filed. Moreover, the value was indirectly derivable from the plotted points in Figure 2 at the position $x = \text{LaB}_6 / (\text{LaB}_6 + \text{ITO}) = 0.06$ which agreed with the proposed

value of 0.09 for the hexaboride concentration, but not with alternative values of "0.08" or even "0.05".

The appellant submitted that a two-step test needed to be applied, comprising firstly objectively establishing what was the content of the application as filed, and secondly, determining whether the amendment complied with Article 123(2) EPC, using as a basis the content of the application as filed as established in the first step. In order to discharge the burden of proof, which rested with the appellant/proprietor, the civil standard of proof (*i.e.* on the balance of probabilities) should be applied. If the board disagreed on this point, the appellant requested that this important point of law be referred to the Enlarged Board of Appeal, so as to ascertain what was the burden and standard of proof required to establish the content of the application as filed, when a part of that application exhibited reduced print quality.

The Survey A6 conducted amongst partners and staff at the firm Withers & Rogers showed that, out of 72 persons surveyed, 67 thought that the relevant entry in Table 1 said "0.09", and only two gave another figure. Three respondents said "0.09", but had also considered other possibilities. These results confirmed that, on an objective analysis, the skilled person would consider the hexaboride concentration reported for example 1 in Table 1 of the application as filed to be "0.09".

If any doubts remained, the skilled person could also refer to the priority document or to the family document A8.

Consequently, the lower ratios specified in the claims of the main request and in auxiliary requests 1 to 3, wherein the value of 0.62 was based on the concentration value of 0.09 for the hexaboride, met the requirements of Article 123(2) EPC.

The ratio of hexaboride to ATO/ITO was the key parameter in the claimed invention and was presented as an essential feature in claims 1 and 6 as filed. Therefore, this parameter should be allowed to be taken from the examples and used for defining the invention.

Novelty

D1 was prior art under the provisions of Article 54(3) EPC only. The claimed subject-matter was novel having regard to D1 because the particular weight ratios of LaB₆ and ITO/ATO were not disclosed in D1.

The claims were also novel having regard to D2 because the compositions disclosed in D2, in contrast to the coating solutions of the claimed invention, were present in the solid state and formed a paste only on heating. They were applied by stencilling.

XII. The respondent essentially argued as follows:

Amendments

The respondent raised objections under Article 123(2) EPC against the value of LaB₆/ITO of 0.62:99.38, which was based on the alleged disclosure of 0.09 for the LaB₆ concentration. However, this value was not

unambiguously derivable from the application documents as originally filed. Contrary to the arguments of the appellant, the scale of the axes and the plotted points in Figure 2 made it impossible to distinguish between 0.62% and 0.55%, and hence it could not be used to confirm the value of 0.09 in example 1 of Table 1.

The respondent also objected to the fact that isolated values had been taken from the examples for constructing new ranges in the claims. The terms ITO and ATO were broad and encompassed all possible proportions of tin and antimony and indium. It was not plausible that the visible light transmittance and the solar transmittance obtained in the examples were independent of the particular compositions of ITO and ATO used in these examples. Hence, a generalization to all possible forms of ITO and ATO was inappropriate.

Claim 1 of auxiliary request 4 contained a disclaimer for the ratio of LaB_6 to ITO that excluded more than was necessary to restore novelty over D1. This disclaimer should therefore not be allowed under Article 123(2) EPC.

Claim 1 of auxiliary request 6 contained an upper limit of the ratio of LaB_6 to ITO or ATO of 0.1 which was allegedly based on page 8, lines 7 to 9. The cited passage referred however to hexaborides in general and not to LaB_6 . It was moreover unclear whether the proportion of one-tenth defined an upper or a lower effective limit for the hexaboride.

Novelty and inventive step

The respondent maintained the objections of lack of novelty and inventive step raised in the opposition brief and accepted by the opposition division in the contested decision.

XIII. Requests:

The appellant requested that the contested decision be set aside and the European patent be maintained on the basis of the claims of the main request or, in the alternative, on the basis of the claims of auxiliary requests 1 to 6, all filed with letter dated 16 January 2012. Should the main request not be allowed, the appellant requested that the following question be referred to the Enlarged Board of Appeal:

"What is the standard of proof required to establish the content of a European patent application as filed, when a part of the specification of that European patent application is only partially legible?"

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. Amendments (Article 123(2) and (3) EPC)

1.1 *Main request and auxiliary requests 1 to 3*

1.1.1 In the application as filed (page 24, Table 1, first row, second column), a number pertaining to the value

of the amount of the Lanthanum hexaboride used in example 1 was illegible and indecipherable. It was not clear whether it should read "0.08" or "0.09", or even "0.05".

The board is not persuaded by the appellant's arguments that the actual disclosure of that figure was unequivocal and that it reads "0.09".

According to the board, said value, in particular the number "9" thereof, is neither directly and unambiguously derivable from said Table 1 (see A5, first row, third column from the left) because the entry in question is so poorly legible that it may be interpreted as "0.08" or as "0.09" or even as "0.05", nor can it be derived in an unambiguous manner from the position on the abscissa of the corresponding data points on the graph of example 1 in Figure 2 as filed. To avoid any ambiguity, a higher degree of accuracy would be required so that the position of the plotted points could be ascertained with a precision of as little as 0.07. Such a precision is, in the board's opinion, impossible to achieve in view of the scale of the abscissa of Figure 2 and in view of the fact that the data "points" are represented by circles having themselves a diameter of at least about 0.05.

The application documents as originally filed are therefore ambiguous in this respect.

- 1.1.2 In accordance with the established jurisprudence of the Boards of Appeal of the EPO, and contrary to the assertions of the appellant, in the case of a proposed amendment under Article 123(2) EPC or of a correction

under Rule 139 EPC, the factual disclosure of a European patent application as originally filed has to be established to a rigorous standard, namely the standard of certainty "beyond reasonable doubt" (see T 113/86, Reasons point 2.2; T 383/88, of 1 December 1992, Reasons, point 2.2.2; T 581/91, of 4 August 1993, Reasons point 3, last three paragraphs; T 723/02, of 13 May 2005, Reasons point 2.4; T 1239/03, of 2 November 2006, Reasons point 3.3.3). In the above-cited decisions, the boards explicitly rejected the "balance of probabilities", the normal standard of proof in civil proceedings, as an appropriate criterion to be applied. In particular, it was decided in T 113/86 (*l.c.*) that

"amendments requested by the Patentee should not be allowed if there was the slightest doubt that the unamended patent could be construed differently to the patent as amended".

In T 383/88 (*l.c.*) the board remarked that

"applying a lower standard could easily lead to undetected abuse by allowing amendments on the basis of ostensibly proven common general knowledge."

- 1.1.3 The board considers that the above-cited jurisprudence is eminently important and clearly applicable to the present case, where an analogous question of compliance or non-compliance with the requirements of Article 123(2) EPC needs to be decided, namely the question of whether a particular proposed feature is disclosed in the application documents as originally filed. Following the established jurisprudence, the

board considers that the balance of probabilities is not an acceptable standard for determining the actual value and that this question should be on the basis of the rigorous standard of certainty characterised as "beyond reasonable doubt". Therefore, the arguments of the appellant adopting a proof "on the balance of probability" in favour of the value of "0.09", in particular the survey A6, must fail. According to this survey - conducted amongst partners and staff at Withers & Rogers LLP (the firm of the appellant's representative) - out of 72 test persons, a total of 67 indicated the relevant entry in Table 1 to be "0.09" without qualification. However, it was also found that two respondents indicated another figure ("0.08") and that three further respondents who indicated "0.09" had also considered other possibilities. In the board's opinion, therefore, these results demonstrate that the value in question cannot be considered to be "0.09" with a certainty "beyond reasonable doubt", as required by the established jurisprudence. In any event, a question of accuracy and disclosure cannot be decided by a poll.

- 1.1.4 The appellant also pointed to the priority document of the patent in suit and to the family patent document A8 (published 20 November 2001) as potential sources of supplemental original disclosure. This approach must fail, because the Enlarged Board of Appeal ruled in decision G 11/91 (OJ EPO 1993, 125; Reasons point 7) that

"[b]efore a correction can be made under Rule 88, second sentence, EPC it has to be established in point of fact what actually a skilled person would derive, on

the date of filing, from the parts of the European patent application relating to the disclosure. As a result of the prohibition of extension under Article 123(2) EPC, documents other than the description, claims and drawings may only be used insofar as they are sufficient for proving the common general knowledge on the date of filing. On the other hand, documents not meeting this condition may not be used for a correction under Rule 88, second sentence, EPC even if they were filed together with the European patent application. These include, inter alia, priority documents, the abstract and the like."

(emphasis added).

Therefore, the disclosure of the priority document cannot be used to supplement or replace parts of the disclosure of the application as originally filed. Nor can it be used to dispel doubts as to the meaning of an ambiguous part of the application.

The same applies to the family documents, for the reason that the text of another patent application based on the same priority document need not be identical to the European patent application.

- 1.1.5 In view of the above reasoning, the lower limit of the ratio of LaB₆ to ITO of **0.62:99.38** (appearing in the independent claims of the main request and auxiliary requests 1 to 3) and derived from a weight ratio of **0.09** to 14.5 (Table 1, example 1) is not disclosed in the originally filed documents.

For comparison only, a weight ratio of **0.8** to 14:5 in example 1 would yield the weight ratio of **0.55:99.45**. The board observes that an amendment to 0.55:99.45 would also not be allowable because of a lack of a clear and unambiguous disclosure of the concentration value of 0.08 in Table 1 as originally filed.

The requirements of Article 123(2) and (3) EPC are thus not met. The main request and auxiliary requests 1 to 3 are not allowable.

1.1.6 Referral to the Enlarged Board of Appeal

The appellant requested - as an auxiliary measure - the referral of a question to the Enlarged Board of Appeal (see point XIII).

Article 112(1)a EPC stipulates that, in order to ensure uniform application of the law, or if a point of law of fundamental importance arises, the Board of Appeal shall, during proceedings of a case and either of its own motion or following a request from a party to the appeal, refer any question to the Enlarged Board of Appeal if it considers that a decision is required for the above purposes.

In the present case, the board is of the opinion that a decision on the question proposed by the appellant is not required, neither to ensure uniform application of the law, because the question has been already decided by the case law, nor because a point of law of fundamental importance had arisen. The decisions cited under point 1.1.3 above demonstrate that the case law is uniform on the issue in question.

For these reasons, the request for a referral must be rejected.

1.1.7 Auxiliary request 4

Claims 1 and 6 of the fourth auxiliary request contain the following passage in the form of a disclaimer:

"provided that the weight ratio of LaB₆ to ATO is not 18.6:81.4".

Said passage lacks a direct and unambiguous basis in the application documents as originally filed. The rules concerning an undisclosed disclaimer therefore apply.

According to G 2/03 (OJ 2004, 448; Order point 2),

"[t]he following criteria are to be applied for assessing the allowability of a disclaimer which is not disclosed in the application as filed:

2.1. A disclaimer may be allowable in order to:

- restore novelty by delimiting a claim against state of the art under Article 54(3) and (4) EPC;*
- restore novelty by delimiting a claim against an accidental anticipation under Article 54(2) EPC; an anticipation is accidental if it is so unrelated to and remote from the claimed invention that the person skilled in the art would never have taken it into consideration when making the invention; and*

- disclaim subject-matter which, under Articles 52 to 57 EPC, is excluded from patentability for non-technical reasons.

2.2. A disclaimer should not remove more than is necessary either to restore novelty or to disclaim subject-matter excluded from patentability for non-technical reasons.

2.3. A disclaimer which is or becomes relevant for the assessment of inventive step or sufficiency of disclosure adds subject-matter contrary to Article 123(2) EPC.

2.4. A claim containing a disclaimer must meet the requirements of clarity and conciseness of Article 84 EPC."

As discussed under point 2.3. below, document D1 (which belongs to the state of the art under Article 54(3) and (4) EPC) does not directly and unambiguously disclose a coating solution for forming a film for cutting off heat radiation which contains fine particles of LaB_6 and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO). The disclaimers in present claims 1 and 6 thus do not serve to restore novelty by delimiting the claims against D1. As none of the other exceptions for an allowable, undisclosed disclaimer stipulated in G 2/03 are applicable, the disclaimers contravene Article 123(2) EPC.

The appellant also argued that the claim passages should not be regarded as a disclaimer and should be allowed following decision G 1/93 (of 2 February 1994; OJ EPO 1994, 541). Said decision states (Order point 2):

"2. A feature which has not been disclosed in the application as filed but which has been added to the application during examination and which, without providing a technical contribution to the subject-matter of the claimed invention, merely limits the protection conferred by the patent as granted by excluding protection for part of the subject-matter of the claimed invention as covered by the application as filed, is not to be considered as subject-matter which extends beyond the content of the application as filed in the sense of Article 123(2) EPC. The ground for opposition under Article 100(c) EPC therefore does not prejudice the maintenance of a European patent which includes such a feature."

According to the appellant, the exclusion of the weight ratio of 18.6:81.4 from the claimed subject-matter

- (a) has the purpose of merely limiting the protection conferred by the patent as granted; and
- (b) is not to be considered as subject-matter which extends beyond the content of the application as originally filed within the meaning of Article 123(2) EPC; and consequently
- (c) the exclusion from protection for part of the claimed subject-matter should not be considered as a disclaimer.

However, the board observes that for a deletion of an undisclosed claim feature to be allowable under Article 123(2) EPC, G 1/93 clearly demands that the feature in question must not provide a technical

contribution to the subject-matter of the claimed invention.

However, the claim feature relating to the exclusion of a certain weight ratio of LaB₆ to ATO of 18.6:81.4 is an essential feature of the claim and cannot, in the board's view, be construed as not technically contributing to the claimed subject-matter.

As to the requirement of Article 123(2) EPC (point (b) above), an amendment must be unambiguously and directly derivable from the application as filed, which is not the case here. As to the "relabeling" of the disclaimer as an "exclusion from protection" (point (c) above), the re-naming cannot alter the fact that the critical passage meets the definition of a disclaimer.

The disclaimers in claims 1 and 6 are therefore also not allowable following G 1/93.

In summary, auxiliary request 4 is not allowable (Article 123(2) EPC).

1.1.8 Auxiliary request 5

The lower endpoint of the claimed ranges of weight ratios of LaB₆:ITO and LaB₆:ATO of 0.1:99.9 is disclosed in claim 1 as originally filed. The upper endpoint of 10.7:89.3 of said range for ITO is derived from Example 5. The upper endpoint of 13.8:86.2 of said range for ATO is derived from Example 15, by taking the ATO concentration in the example as 5.25% (this value appears clearly in Table 1 of the application documents as originally filed). The board observes in this

context that the value of 6.24% appearing in the published patent application and in the patent specification is incorrect.

As the weight ratios 10.7:89.3 for LaB₆:ITO and of 13.8:86.2 for LaB₆:ATO have been taken out of their original context of examples 5 and 15, respectively, and combined with other values so as to construct new ranges not explicitly disclosed in the application documents as originally filed (thus amounting to an "intermediate generalisation"), the board has to examine whether the resulting amendments fulfil the requirements of Article 123(2) EPC.

In accordance with the jurisprudence of the Boards of Appeal of the EPO, extracting an isolated feature from an originally disclosed combination and using it to delimit claimed subject-matter is only allowable in connection with Article 123(2) EPC if that feature was not inextricably linked with further features of that combination (see T 714/00, of 6 August 2002, Reasons point 3.3). In decision T 201/83 (of 9 May 1984, OJ EPO 1984, 481) the board allowed the introduction into claim 1 of a (higher) lower limit of calcium which had only been disclosed in combination with specific amounts of magnesium and tin in the case of an amendment of the definition of a lead alloy comprising calcium and magnesium in certain weight ranges. The board argued (Reasons point 9, second and third sentences):

"In view of the loose connection between particular calcium and magnesium contents with regard to the effect, the expert would treat them as features of

design that could be separately considered. The same applies to the tin content, ...".

Applying this case law, the board considers that the weight ratios of 10.7:89.3 for LaB₆:ITO and 13.8:86.2 for LaB₆:ATO are not inextricably linked with any of the particular further parameters of examples 5 and 15, respectively, in particular not with the binder type and binder concentration in the coating solution (which are maintained the same in all the examples containing ITO and ATO, respectively), or with the type of dispersant or coupling agent used. The skilled person would derive from the application documents, in particular from the examples and the summary of results in Table 1 that these parameters could - within reasonable limits and in accordance with the guidance from the description - be freely varied irrespective of the actual weight ratios of LaB₆:ITO and LaB₆:ATO.

Nor did the amendments in question result in an inadmissible generalisation of an effect which was obtained for particular embodiments only. The board notes that the claims (as granted and as amended) do not specify a particular degree of visible light transmittance or solar transmittance as a result of applying the claimed coating solutions or as a property of the claimed films. In fact, the data of Table 1 (Examples 2 to 5 [weight ratios 1.37:98.63; 2.23:97.77; 3.29:96.71; 10.71:89.29] and Examples 10 to 15 [weight ratios 1.10:98.90; 1.81:98.19; 3.24:96.76; 7.69:92.31; 10.37:89.63; 11.86:88.14]) suggest that the achievable solar transmittance is largely independent of the variation of the weight ratios of LaB₆:ITO and LaB₆:ATO, at least within the ranges of concentration ratios of

the amended claims. Visible light transmittance remains constant at 76% and 60%, respectively, too, and the same applies to the surface resistivity ($>1 \times 10^6 \Omega/\text{square}$).

The board cannot follow the argument put forward by the respondent that the terms "tin-containing indium oxide (ITO)" and "antimony-containing tin oxide (ATO)" as used in the claims were very broad and general. Even if this were the case, the objection was one of clarity and support of the claims (Article 84 EPC). Such an objection is not admissible in opposition pursuant to Article 100 EPC if directed against a feature already present in the claims as granted. From the fact that neither the examples nor the description specify a particular composition of ITO or ATO to be used in the accordance with the invention, the skilled person would appreciate that the exact composition is not critical. Therefore, the board sees no unallowable generalization in the circumstance that the claims relate to all possible forms (compositions) of ITO and ATO, whereas the examples necessarily only exemplify particular selected compositions.

Dependent claims 2 to 5 and 7 to 13 are based on claims 2, 5, 3, 4, 7 to 13, respectively, of the originally filed documents.

The claims of the fifth auxiliary request thus meet the requirements of Article 123(2) EPC.

1.2 *Article 123(3) EPC (auxiliary request 5)*

By limiting the claimed subject-matter to compositions and films containing LaB₆ as a hexaboride and by further limiting the compositional ratio of Lanthanum hexaboride to ITO or ATO to maximum values of 10.7:89.3 and 13.8:86.2, respectively, the compositions specifically disclaimed (weight ratio of 18.6:81.4) in granted claim 1 are not covered by the claims as amended. Therefore, the disclaimer in granted claim 1 may be removed without violating Article 123(3) EPC.

The claims of auxiliary request 5 meet the requirements of Article 123(3) EPC.

2. Priority (auxiliary request 5)
 - 2.1 The patent in suit claims the priority date of 10 December 1998 (JP 10-351212).
 - 2.2 The opposition division denied the priority right on the grounds that the priority document was not the first application of the invention within the meaning of Article 87(1) EPC, since the same subject-matter had already been disclosed in D1.
 - 2.3 Having regard to the claims as amended, the board considers the objection moot, for the following reasons.

D1 discloses a coating solution for forming a film having a high visible transmittance and high near-IR reflectivity. The coating solution contains a dispersion of fine particles of a boride selected from a large group of elements, including La (see paragraph [0010]; Table 1; claim 2). For obtaining films having a still higher transmittance for visible light, the

solution may according to paragraph [0034] additionally contain ultrafine particles of ATO, ITO or Al-containing ZnO. Examples 28 and 29 (paragraphs [0059] and [0060]) appear to mention ITO and ATO, respectively, in combination with a "dispersion A" which contains LaB₆ (see paragraph [0038]). However, these passages are ambiguous in view of Table 1 (page 9), which discloses that the very same examples 28 and 29 contain CeB₆ rather than LaB₆, in combination with ITO and ATO, respectively. Besides that, D1 fails to disclose any concrete mixing ratio of LaB₆ and ITO/ATO.

The board therefore concludes that D1 does not disclose the same invention as the priority document of the present application, in particular having regard to the claims as amended. The requirements of Article 87(1) EPC concerning the priority right are therefore met.

2.4 Consequently, D1 (published on 22 September 1999 with the priority of 16 March 1998) is prior art under the provisions of Article 54(3) EPC.

3. Novelty (auxiliary request 5)

3.1 As already discussed under point 2.3. above, D1 fails to disclose directly and unambiguously a coating solution for forming a film for cutting off heat radiation which contains fine particles of LaB₆ and fine particles of tin-containing indium oxide (ITO) or antimony-containing tin oxide (ATO). Moreover, the weight ratios of LaB₆ to ITO from 0.1:99.9 to 10.7:89.3 and the weight ratio of LaB₆ to ATO from 0.1:99.9 to 13.8:86.2 are also not disclosed in D1.

D1 also does not disclose a film on a base formed by coating a solution having the composition of claim 1 on at least one side of a base (claim 6).

The claimed subject-matter of claims 1 and 6 of auxiliary request 5 is therefore novel having regard to document D1. The same applies to dependent claims 2 to 5 and 7 to 13 by virtue of their dependencies.

3.2 D2 was cited by the respondent as novelty-destroying against the claims as granted.

D2 discloses a paste composition for forming thin-film resistance composites, comprising a boride (such as LaB_6) having a particle size of less than 40 μm , a powder of Sb containing SnO_2 (Sb content 1%, particle size less than 1 μm), a glass and an organic binder (see page 331). An example of the compositions contained 47 parts glass, 48 parts ATO and 5 parts of lanthanum boride (Table 3; page 334).

The preparations disclosed in D2 appear to differ from the subject-matter claimed in claim 1 in accordance with auxiliary request 5 in that the former are in the form of a paste, whereas the present claims are literally directed to a "solution". However, it is clear in the context of the opposed patent that the claimed coating preparation contains substantial amounts of insoluble matter, in other words, that it may also be called a dispersion. The term "solution" does thus not appear to be strictly applicable.

In the board's opinion the distinction between a paste and a dispersion might not be well-defined enough so as to confer by itself novelty to the claimed subject-matter. The influence, if any, of the glass component contained in the paste of D2 on the film's properties needs to be discussed, too, in order to decide whether or not D2 is novelty-destroying.

4. Remittal

The contested decision is solely based on the finding of a lack of novelty having regard to document D1. In view of point 3.1 above, this part of the contested decision cannot stand.

The board notes in particular that the opposition division formed no opinion on inventive step. In the appeal procedure the appellant submitted Figures 1 and 2 as new experimental evidence in support of the presence of an inventive step.

In view of the foregoing, the board does not deem it expedient to enter into a fully-fledged discussion of inventive step. The board therefore exercises its discretion under Article 111(1) EPC, second sentence, to remit the case to the department of first instance for examination as to whether the new claims meet the requirement of novelty, having regard to the remaining prior art documents, and inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:

C. Vodz

G. Raths