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**Datasheet for the decision  
of 10 February 2009**

**Case Number:** T 1184/07 - 3.2.08

**Application Number:** 97108226.8

**Publication Number:** 0808912

**IPC:** C22C 29/08

**Language of the proceedings:** EN

**Title of invention:**

Composite carbide powder used for cemented carbide and method  
of producing the same

**Patentee:**

Tokyo Tungsten Co., Ltd.

**Opponents:**

H.C. Starck GmbH  
Wolfram Bergbau-und Hütten-GmbH Nfg.KG

**Headword:**

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**Relevant legal provisions:**

EPC Art. 123(2), 123(3)  
EPC R. 115

**Relevant legal provisions (EPC 1973):**

EPC Art. 113(1), 114(1), 100(c)

**Keyword:**

"New ground of opposition (yes)"  
"Right to be heard (yes)"  
"Referral to the Enlarged Board of Appeal (no)"

**Decisions cited:**

T 0052/04, T 0433/93, T 0005/90, G 0001/93

**Catchword:**

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Case Number: T 1184/07 - 3.2.08

**DECISION**  
of the Technical Board of Appeal 3.2.08  
of 10 February 2009

**Appellant:** Tokyo Tungsten Co., Ltd.  
(Patent Proprietor) 24-8, Higashiueno 5-chome  
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**Representative:** Hering, Hartmut  
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**Respondents:** H.C. Starck GmbH  
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**Representative:** Ackermann, Joachim  
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(opponent II) Wolfram Bergbau-und Hütten-GmbH Nfg.KG  
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**Representative:** Wildhack, Helmut  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted 30 May 2007  
revoking European patent No. 0808912 pursuant  
to Article 102(1) EPC 1973.**

**Composition of the Board:**

**Chairman:** T. Kriner  
**Members:** R. Ries  
A. Pignatelli

## **Summary of Facts and Submissions**

- I. The grant of European patent No. 0 808 912 on the basis of European patent application No. 97108226.8 was mentioned on 30 August 2000.
- II. The granted patent was opposed by the present respondents (opponents OI and OII) on the grounds that its subject matter lacked novelty and did not involve an inventive step (Article 100(a) EPC 1973).
- III. With its decision posted on 13 November 2003, the Opposition Division held that the claimed subject matter of the independent claims 1 and 4 as granted lacked novelty with respect to the disclosure of document D1: US-A-3 480 410 as the only document of interest and revoked the patent.
- IV. An appeal against this decision was filed by the patent proprietor (the appellant) on 12 January 2004. In its decision T 52/04 of 31 March 2006, the Board held that the process set out in claim 4 as granted was novel over the disclosure of document D1 and remitted the case to the opposition division for further prosecution on the basis of the claims as granted.
- V. During the oral proceedings held on 10 May 2007, the opposition division introduced of its own motion a new ground of opposition under Article 100(c) EPC 1973. As set out in the minutes, point 2, the opposition division understood claim 1 as granted as defining the final composite carbide powder which, after heating to the firing temperature, comprised fine primary crystal particles of tungsten carbide in which chromium carbide

was diffused. No support was, however, found in the application as filed for a final composite carbide powder comprising a mixture of primary particles of tungsten carbide "**and a chromium containing powder**" as a second powder. The opposition division therefore concluded that claim 1 as granted contained added subject matter, contrary to Article 123(2) EPC 1973. Removal of the technical feature "*and a chromium containing powder*" was precluded since such an amendment to claim 1 would result in a product different to the one defined in claim 1 as granted and thus would lead to an extension of the protection conferred, contrary to Article 123(3) EPC 1973. Since the opposition division had discovered the new ground shortly before the oral proceedings, the parties could not be informed about this objection in advance.

After two breaks of the oral proceedings, the second break lasting 2.5 hours for deliberation on the patentee's side, the patentee's representative submitted an amended set of claims as the main request, and as an auxiliary request the set of claims enclosed with its letter of 7 February 2007. He admitted that he was given sufficient time to think about and react on the objection raised by the opposition division under Article 123(2), (3) EPC 1973, but argued that the inventor would like to contact his company before a decision. He also requested to continue the procedure in writing or to postpone the decision.

The opposition division held that the patentee had been given a fair opportunity to prepare and present his comments on the new issue, in accordance with Article 113(1) EPC 1973. Given that no solution to the

Article 123(2) - (3) EPC conflict was discernable, the opposition division refused the patentee's requests for continuing in writing or postponing the proceedings and revoked the patent under Article 102(1) EPC 1973 for added subject matter under Article 123(2) with its decision dated 30 May 2007.

VI. Against this decision an appeal was lodged by the patentee on 18 July 2007 and the appeal fee was paid on the same date. A written statement setting out the ground of appeal was filed on 26 September 2007 within the time limit given in Article 108 EPC 1973.

VII. Oral proceedings before the Board were held on 10 February 2009. As announced in its letter received at the EPO on 20 January 2009, opponent II did not attend the oral proceedings. Pursuant to Rule 115 EPC, the appeal proceedings were continued without him.

VIII. The following requests were made:

The appellant requested that

- the decision under appeal be set aside and
- the patent be maintained as granted as a main request or, that
- the patent be maintained on the basis of auxiliary request 1 filed during the oral proceedings or of auxiliary requests 3, 4, filed on 9 January 2009 or of auxiliary request 5 filed during the oral proceedings.

Auxiliary request 2 filed with the letter dated 26 September 2002 was withdrawn.

The appellant furthermore requested:

- remittal of the case to the first instance,
- reimbursement of the appeal fee, and
- to present the case to the Enlarged Board of Appeal with regard to the Decision T 5/90 and the violation of Article 123(3) EPC by the change of the claim category by deletion of the product related features to a method of producing a product.

Independent claims 1 and 4 as granted read as follows:

"1. A composite carbide powder comprising, as a main component, tungsten carbide powder, which consists essentially of fine primary crystal particles of tungsten carbide, and a chromium containing powder, wherein said tungsten carbide powder satisfies an inequality given by:

$$Y > 0.61 - 0.33 \log(x)$$

where Y denotes a half-value width of (211) crystal planes in the tungsten carbide (JCPDS-card 25-1047,  $d = 0.9020$ ) measured by X-ray diffraction method where x denotes a grain size measured by a FSSS method, said grain size x being between 1.0 and 7.0  $\mu\text{m}$ ."

"4. A method of producing a composite carbide powder having tungsten carbide as a main element, according to one of claims 1 to 3, the method comprising the steps of:

preparing tungsten powder, which has a mean grain size between 1 and 7  $\mu\text{m}$ ;  
mixing the tungsten powder with carbon powder and chromium containing powder into mixture; and  
heating the mixture in an atmosphere selected from one of a hydrogen atmosphere, a vacuum atmosphere, and an inert gas atmosphere at a heating rate

between 3 and 100°C/min to a temperature between 1200 and 1700°C, where it is held for 10 to 300 minutes, to form fine primary crystal particle carbide as the composite carbide powder, said chromium containing powder being added in the form of a selected one of metal chromium, organic chromium compound and inorganic chromium compound, such as chromium oxide and chromium carbide."

Compared to claim 1 as granted, claim 1 of the auxiliary request I further included the wording (in bold letters):

"1. A composite carbide powder comprising, as a main component, tungsten carbide powder, which consists essentially of fine primary crystal particles of tungsten carbide, **containing by weight 0.2 to 2.5% of chromium carbide**, and a chromium containing powder, wherein..."

Claim 1 of the auxiliary request III corresponds to method claim 4 as granted wherein the wording "**according to one of claims 1 to 3**" has been deleted.

Claim 1 of the auxiliary request IV corresponds to claim 1 of the auxiliary request III to which the wording (in bold letters) was added:

"1. A method of producing...as the composite carbide powder, **whereby Cr components are diffused into WC particles**, said chromium containing powder being added..."



Claim 1 of the auxiliary request V corresponding to claim 4 as granted has been amended to include the wording (in bold letters):

"1. A method of producing a composite carbide powder having tungsten carbide as a main element, **consisting essentially of fine primary crystal particles of tungsten carbide, which satisfies an inequality given by:**

$$Y > 0.61 - 0.33 \log(x)$$

**where Y denotes a half-value width of (211) crystal planes in the tungsten carbide (JCPDS-card 25-1047, d = 0.9020) measured by X-ray diffraction method where x denotes a grain size measured by a FSSS method, the method comprising the steps of:..."**

IX. The appellant's arguments can be summarized as follows:

The new ground of opposition under Article 123(2) EPC 1973 was introduced by the opposition division for the first time at the oral proceedings. In decision T 433/93 the Board ruled that the opposition division should, in order to satisfy Article 113(1) EPC 1973, have informed the patent proprietor either in writing before the oral proceedings or in written form at the oral proceedings about the new ground of opposition and the essential legal and factual reasons leading to a finding of invalidity and revocation of the patent. In the absence of doing so, a procedural violation under Article 113(1) EPC 1973 took place at the opposition proceedings so that the requests for remittal to the first instance and reimbursement of the appeal fee were justified.

The patentee's requests to continue the proceedings in writing or to postpone the oral proceedings were refused, so the patentee's representative and the inventor were cut off from the possibility to contact the company in Japan for further consultation in order to overcome the objection raised under Article 123(2) EPC 1973. Confronted with this new situation, the appellant was deprived of the proper opportunity to present comments on the new ground and its substantiation. Already for this reason, the decision of the opposition division should be set aside.

From the technical point of view, the opposition division had been led astray by concluding from the patent specification that a chromium containing powder did not exist in the final tungsten carbide product. On the contrary, the existence of a chromium containing powder in the final product must be derived from the absence of a purifying step for the final powder product after heating. A skilled person was aware of the fact that the diffusion process did not occur at 100% so that always some of the chromium powder (for example chromium carbide) remained un-reacted in the final product. The presence of some chromium carbide powder in the final product thus was unavoidable. Another interpretation of the wording of claim 1 could reside in meaning that the chromium containing powder was understood to form a part of the tungsten carbide powder.

Consequently the inclusion of the feature "*and a chromium containing powder*" into claim 1 did not violate Article 123(2) EPC.

X. The respondent's arguments are summarized as follows:

As proven by the minutes of the oral proceedings before the opposition division and confirmed by the patentee's representative, he was given sufficient time (two interruptions of the proceedings for about 3 hours) for considering the new ground of opposition and to prepare comments on the ground and its substantiation. In the present case, the new ground raised under Article 123(2) EPC 1973 and the conflicting situation under Articles 123(2)-(3) EPC could be easily understood and in its decision of refusal, the opposition division dealt with the same ground, contrary to the situation underlying T 433/93. Hence a violation of Article 113(1) EPC 1973 did not occur.

The patent specification used the feature "chromium containing material" only in the context of the starting mixture and not as forming a part of the final product, contrary to what was now claimed in all claims. The opposition division's understanding of the technical disclosure of the patent at issue was therefore correct and so was the conclusion leading to the objection to the claims as granted under Article 123(2) EPC.

### **Reasons for the Decision**

1. The appeal is admissible.
2. *New ground of opposition; the Article 123(2)-(3) EPC conflict; main request*

During substantive examination, the wording of claim 1 as originally filed was amended to further include the feature "and a chromium containing powder". To the Board's understanding, the composite carbide powder defined in claim 1 as granted therefore constitutes a final product comprising a mixture of (a) WC particles, and (b) a chromium containing powder. The final product set out in claim 1 is obtained by the method defined in claim 4.

- 2.1 The presence of the above-mentioned feature in claim 1 as granted was objected to by the opposition division under Article 123(2) EPC 1973 which was disputed by the appellant. It therefore has to be examined whether the subject matter defined in claim 1 as granted finds support in the application as filed.

The passages on page 4, last paragraph to page 5, first paragraph, page 12, last sentence to page 13, line 2, the abstract on page 18 of the original application and claims 7, 9, 17 as originally filed all disclose beyond doubt that the "chromium containing powder" actually forms a part of the starting mixture of raw materials rather than of the final product as defined in claim 1 as granted. Specifically the starting mixture comprises tungsten particles (size 1.0 to 7.0  $\mu\text{m}$ ), carbon powder and a chromium containing material or powder (called Cr-powder) which may be in the form of chromium metal, chromium oxide, organic or inorganic chromium compounds or chromium carbide (see page 11, first paragraph of the application as filed, claims 7 and 9 as filed). By the heating process, the starting mixture is carburized into to a composite carbide powder which includes fine primary crystal WC particles having chromium diffused

therein (see page 5, second paragraph of the application as filed). The skilled reader is taught by the explanations given on pages 6 and 7 and also in the abstract, page 18 of the application as filed that the mean grain size of the W powder and the amount of Cr powder of the starting powder mixture as well as the heating rate to the firing temperature are to be selected carefully to fall within narrow ranges. Adhering to these process parameters guarantees the diffusion of the Cr powder into the tungsten carbide particles and to form a solid solution of Cr in the WC grains (in the form of Cr-carbide in the range of 0.2 to 2.5 wt %). As to the concentration range for chromium carbide, the reader is warned on page 7, second paragraph not to add amounts higher than 2.5% chromium carbide, since exceeding the solid solution limit for chromium carbide in the WC grains would give rise to (unwanted) phases weakening the strength of the final product and making it fragile. It is therefore evident from the patent specification that the claimed process aims at preventing the formation or presence of deleterious phases in the final product by assuring complete diffusion of chromium carbide into the WC grains. Hence, the appellant's allegation that some of the chromium containing powder of the starting mixture always remained un-reacted and un-diffused in the final product is in clear contradiction to the technical teaching given in the patent.

Likewise, the appellant's interpretation of the wording of claim 1 that the term "*and a chromium containing powder*" is intended as meaning "to form a part of the main component", tungsten carbide powder, is inconceivable since such an interpretation is neither

derivable from the wording of claim 1 read individually nor in combination with the explanations given in the description of the application as filed.

In consequence thereof and contrary to the appellant's allegations, there is no basis in the application as filed implying that, apart from the (W,Cr)-carbide primary crystals, a chromium containing powder as a separate component exists in the final product, as set out in claim 1 as granted.

It is therefore concluded that the objection to claim 1 as granted under Article 123(2) EPC raised by the opposition division at the oral proceedings and addressed in the impugned decision is justified. In this respect the Board concurs with the position of the opposition division that the feature "*and a chromium containing powder*" has a technical meaning and does not fall under the exceptional cases referred to in decision G 1/93, OJ EPO 1994, 541 of the Enlarged Board of Appeal. The deletion of the disputed feature is therefore excluded because this would violate Article 123(3) EPC.

3. *First auxiliary request*

Claim 1 of the first auxiliary request results from a combination of claims 1 and 2 as granted, but still comprises the technical feature "and a Cr containing powder" which contravenes Article 123(2) EPC. Therefore, the claims according to the first auxiliary request are not allowable.

4. *Third to fifth auxiliary requests*

Claim 1 of the third and fourth auxiliary requests are based on claims 4 and 9 as granted, respectively. By deleting the term "*according to one of claims 1 to 3*", the wording of both claims has been amended to no longer refer back to the claimed composite carbide powder. Contrary to the method set out in independent claim 4 as granted which is limited to the production of a WC powder exhibiting all the properties of the product defined in claim 1 as granted, the process set out in claim 1 of the third and fourth auxiliary requests may result in a plethora of products in which a Cr-containing powder may be absent. Deletion of the term "*according to one of claims 1 to 3*" therefore leads to an extension of the protection conferred, contrary to Article 123(3) EPC. Hence, the claims of the third and fourth auxiliary requests are not allowable either.

The same objection is true for claim 1 of the fifth auxiliary request which includes some of the physical properties of the final powder but nevertheless fails to mention the feature "*and a chromium containing powder*". Hence, claim 1 of the fifth auxiliary request is not allowable either.

5. *Procedural issues*

5.1 Right to be heard, Article 113(1) EPC 1973

The patent proprietor was made aware of the objection under Article 100(c) EPC 1973 for the first time at the oral proceedings before the opposition division. Even

at such a late stage of the proceedings, the opposition division is entitled to introduce a new ground of opposition of its own motion, pursuant to Article 114(1) EPC 1973. However, decisions of the European Patent Office may only be based on the grounds or evidence on which the parties concerned have had an opportunity to present their comments (Article 113(1) EPC 1973).

As can be derived from the minutes, the new ground of opposition under Article 100(c) EPC 1973, 123(2) EPC 1973 was discovered shortly before the oral proceedings and was found prima facie prejudicial to the maintenance of the patent. This new ground was discussed in detail with the appellant's representative on the basis of the technical disclosure of the patent specification. The representative agreed at least in part with the opposition division's technical perception of the claimed process and the product thereby obtained, but argued that the limiting feature "chromium containing powder" in claim 1 was an indirect feature resulting unavoidably from the process. By interrupting the oral proceeding twice for more than two and a half hours, the representative was given time for deliberation with the accompanying inventor and to prepare a proper defence in reply to the new ground and its substantiation. According to point 4, fourth paragraph of the minutes, the representative himself admitted that he had enough time to think about and react on the objection under Article 100(c) EPC 1973. Moreover, the opposition division gave convincing reasons as to why the appellant's additional requests for postponing the proceedings were refused. In fact, the opposition division decided to refuse the representative's requests for continuing the



proceedings in writing or postponing the decision because the Article 123(2)-(3) EPC 1973 conflict, arising from the ground for opposition under Article 100(c), could not be resolved. In conclusion, the patentee's representative was informed by the opposition division at the oral proceedings not only of the new ground of opposition based on Article 100(c) EPC, as the only point of issue, but also about the essential legal and factual reasons leading to the finding of invalidity and revocation. Moreover, he admitted that he was given sufficient time for responding to the new ground by presenting comments and further requests. The appellant's argument according to which the inventor wanted to contact his company in another time zone (Japan) cannot alter this conclusion. The representative should be familiar with the case and it is in his responsibility to react adequately to all kinds of issues arising during the proceedings before the EPO.

The Board also notes that the decision of the opposition division leading to the revocation of the patent at issue is based on the same arguments and the same ground of opposition which was amply discussed at the oral proceedings (Article 100(c) EPC 1973, 123(2) EPC 1973, see points 1 to 3 of the decision, the minutes). Therefore, the appellant's reference to T 433/93 has no bearing on the matter since this decision was taken on the basis of a different situation. In this case, the new ground of opposition was neither specifically raised and introduced into the opposition during the oral proceedings, nor had the patent proprietor had a fair opportunity at all to be heard before the first instance in relation to the new ground prior to the issue of a decision purporting to

revoke the patent on this ground (see T 433/93, point 2, second paragraph).

The appellant further submitted with reference to decision T 433/93 that a party has the right to present comments in that the EPO should communicate a new ground in writing even during oral proceedings. This behaviour was recommended in an obiter dictum in the decision T 433/93. However, there is no provision in the EPC that the right to be heard can only be exercised in writing. Decision T 433/93 is an isolated case in the jurisprudence of the Boards of Appeal which in most decisions considers oral proceedings as an adequate way to present comments. A deviation from a recommendation does not constitute a substantial procedural violation if the provisions of the EPC are otherwise satisfied.

Therefore, the Board cannot find in the present case any indication justifying a substantial procedural violation by the first instance which could lead to a remittal or to the reimbursement of the appeal fee.

- 5.2 The request to present the case to the Enlarged Board of Appeal is refused because only legal questions can be referred to the Enlarged Board of Appeal but not the whole case (see Case Law of the Boards of Appeal VII.D.13). The request filed does not specify which legal question of fundamental importance should be decided by the Enlarged Board of Appeal. The request aims at an appreciation of the fulfilment of the conditions of Article 123(3) EPC in the concrete case. This is not the purpose of a referral to the Enlarged Board of Appeal. This procedural instrument is only

allowed to clarify general questions of fundamental importance. Furthermore, the jurisprudence concerning the change of category is clear and the Board sees no reason to depart from it.

## **Order**

### **For these reasons it is decided that:**

1. The appeal is dismissed.
2. The request for reimbursement of the appeal fee is refused.
3. The request for referral to the Enlarged Board of Appeal is refused.

The Registrar:

The Chairman:

V. Commare

T. Kriner