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Datasheet for the decision of 19 October 2017

Case Number: T 0227/13 - 3.2.03

Application Number: 07109583.0

Publication Number: 1867755

IPC: C23C30/00, C23C16/40, C23C16/56

Language of the proceedings: EN

Title of invention:
Coated cutting tool insert

Patent Proprietor:
Sandvik Intellectual Property AB

Opponents:
Ceratizit Austria GmbH
MITSUBISHI MATERIALS CORPORATION

Headword:

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Amendments - added subject-matter (yes)

Decisions cited:
T 1265/04, T 1511/07, T 0964/09, T 2001/10, T 0925/98

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0227/13 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 19 October 2017

Appellant: (Opponent 1)	Ceratizit Austria GmbH Metallwerk-Plansee-Strasse 71 6600 Reutte (AT)
Representative:	Ciesla, Bettina Plansee Group Service GmbH Intellectual Property Department 6600 Reutte (AT)
Appellant: (Opponent 2)	MITSUBISHI MATERIALS CORPORATION 1-5-1. Ohtemachi Chiyoda-ku Tokyo (JP)
Representative:	Gille Hrabal Brucknerstrasse 20 40593 Düsseldorf (DE)
Respondent: (Patent Proprietor)	Sandvik Intellectual Property AB 811 81 Sandviken (SE)
Representative:	WSL Patentanwälte Partnerschaft mbB Postfach 6145 65051 Wiesbaden (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 7 December 2012 concerning maintenance of the European Patent No. 1867755 in amended form.**

Composition of the Board:

Chairman	G. Ashley
Members:	B. Miller
	E. Kossonakou

Summary of Facts and Submissions

I. European patent No. 1 867 755 relates to a coated cutting tool insert of cemented carbide.

II. Oppositions were filed against the patent, based on the grounds of Article 100(a) together with both Articles 54 and 56 EPC and Article 100(b) EPC.

III. The interlocutory decision of the opposition division was appealed by both opponents. Opponent 2 (Mitsubishi Materials Corporation) withdrew its opposition during the appeal phase (letter dated 29 July 2013) and is therefore no longer a party to the proceedings.
The remaining opponent (the appellant) is Ceratizit Austria Gesellschaft m.b.H..

IV. The appellant requested that the decision under appeal be set aside and the patent be revoked in its entirety.

V. The respondent (patent proprietor) requested that the appeal be dismissed. The main request therefore corresponds to auxiliary request 1 in the opposition proceedings, which was considered by the opposition division to fulfil the requirements of the EPC. Alternatively, it requested that the patent be maintained on the basis of the claims of one of auxiliary requests 1 to 3 filed with the reply to the grounds of appeal dated 17 September 2013.

VI. Claim 1 according to the main request reads:

"A coated cutting tool insert of cemented carbide comprising a body of generally polygonal or round shape

having at least one rake face and at least one clearance face
characterized in
said insert having a composition of 4.4-6.0 wt-% Co, 4-8.5 wt-% cubic carbides, balance WC, a CW-ratio in the range 0.78-0.92 and having a surface zone of a thickness of 15 to 40 µm, depleted from the cubic carbides TiC, TaC and/or NbC, said insert being at least partly coated with a 10-25 µm thick coating including at least one layer of TiC_xN_y,
where $x \geq 0$, $y \geq 0$ and $x+y=1$ and an α-Al_2O_3-layer being the outer layer at least on the rake face,
and that on said at least one rake face

- the TiC_xN_y-layer having a thickness of from 5 µm to 15 µm, and a tensile stress level of 50-500 MPa, and
- the α-Al_2O_3-layer having a thickness of from 3 µm to 12 µm, being the outermost layer with an XRD-diffraction intensity ratio $I(012)/I(024) \geq 1.3$ and having a mean Ra value $MRa < 0.12$ µm at least in the chip contact zone on the rake face,

and on said at least one clearance face

- the TiC_xN_y-layer having a tensile stress in the range 500-700 MPa and having a thickness of from 5 µm to 15 µm and that
- the α-Al_2O_3 -layer has an XRD-diffraction intensity ratio $I(012)/I(024)<1.5$."

Claims 2 to 14 of the main request relate to preferred embodiments of the coated cutting tool insert according to claim 1.

Claim 1 of each auxiliary request is based on the wording of claim 1 of the main request and comprises additional features, summarized as follows:

Claim 1 of auxiliary request 1 further defines the average grain size in the WC.

Claim 1 of auxiliary request 2 further defines the texture of the α-Al_2O_3 -layer.

Claim 1 of auxiliary request 3 further defines the average grain size in the WC and the texture of the α-Al_2O_3 -layer.

VII. With the summons to oral proceedings, the Board sent a communication pursuant to Articles 15(1) and 17(2) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating its preliminary, non-binding opinion of the case.

VIII. Oral proceedings were held on 19 October 2017.

IX. The appellant's arguments relating to the present decision can be summarised as follows.

Claim 1 of each request went beyond the teaching as originally filed, since the combination of features as defined in each claim was not derivable from the application as filed.

X. The respondent’s respective arguments can be summarised as follows.

Combining end-points of parameter ranges was generally accepted according to established case law and reflected common practice to limit the scope of protection. The technical teaching of claim 1 of each request did not go beyond the teaching as originally

filed, since each amendment was based on a preferred option disclosed in the application as filed.

Reasons for the Decision

1. Main request

Article 123(2) EPC

Compared to the application as originally filed, claim 1 of the main request has been amended by introducing the additional feature that the TiC_xN_y-layer of the clearance face has a thickness of from 5 µm to 15 µm and by limiting certain parameter ranges defined in claim 1.

1.1 Thickness of the TiC_xN_y-layer

With respect to the rake face the application as originally filed discloses on page 3, lines 34 to 35 (paragraph [0019]), that the thickness of the TiC_xN_y-layer is "from 3 µm, preferably from 4 µm, more preferably from 5 µm, most preferably from 6 µm, to 15 µm, preferably to 13 µm, most preferably to 10 µm".

The deposition of the coatings takes place by CVD as indicated in paragraphs [0014] and [0026] of the application as originally filed. Since this technique results in the coating being applied equally to all exposed surfaces, the TiC_xN_y-layer on both rake and clearance faces will have the same thickness.

No teaching can be found in the application as filed that specific conditions or process steps are applied

in order to achieve a thickness of the TiC_xN_y-layer on the clearance face which is different from that on the rake face.

Conventional post-treatment steps, such as wet blasting, are also not likely to change the thickness of the TiC_xN_y-layer, since it is protected by the further α-Al_2O_3-layer.

Therefore the thickness of the TiC_xN_y-layer on the clearance face is considered to be implicitly disclosed in the application as filed by the teaching in the context of the rake face and the fact that the coating is applied by a CVD process.

1.2 Limiting of parameter ranges

Compared to the application as originally filed, claim 1 of the main request has been amended by

- limiting the Co-content from 4.4 - 6.6 wt.% to 4.4 -6.0 wt.%,

- changing the thickness of the surface zone from 10 to 40 µm to 15 to 40 µm and

- changing the minimum thickness of the TiC_xN_y-layer on the rake face from 3 µm to 5 µm which inherently leads to the same minimum thickness of the TiC_xN_y-layer on the clearance face (see point 1.1. above).

Although the individual end points of the above amended ranges are mentioned in claims 1 and 6 as originally filed, none of the newly generated ranges is directly derivable from the application.

With respect to the Co-content, claim 1 as filed discloses a combination of broad and preferred ranges ("of 4.4-6.6, preferably 5.0-6.0, most preferably 5.0-5.8, wt-% Co").

Concerning the thickness of the surface zone and the TiC_xN_y-layer, the application as filed does not teach specific preferred ranges but lists in more general terms alternative end points. In more detail, claim 1 as filed teaches that the thickness of the TiC_xN_y-layer is "from 3 µm, preferably from 4 µm, more preferably from 5 µm, most preferably from 6 µm, to 15 µm, preferably to 13 µm, most preferably to 10 µm". Similarly claim 6 as filed teaches that the thickness of the surface zone is "from 15 µm, or alternatively from 20 µm, to 35 µm, alternatively to 30 µm, or alternatively to 25 µm".

Hence at least three selections within lists of ranges and lists of alternative end points are necessary to arrive at claim 1 of the current main request.

According to established case law (Chapter II.E.1.3.1 of the Case Law of the Boards of Appeal, 8th edition, 2016), a single combination of values from broad and preferred ranges is allowable. This general principle is also reflected by T925/98, as cited by the respondent.

The present Board is also of the view that each of the amendments on an individual basis constitutes a single selection from the list of possible ranges taught by the application as originally filed and therefore would be allowable when considered on its own.

However, in the present case a new range has been generated not only once, but three times, as indicated above.

There is no pointer in the application as originally filed that an insert having in combination the claimed parameter ranges for Co-content, thickness of the surface zone and thickness of the TiC_xN_y-layers is preferential.

The present Board agrees with the reasoning in T1265/04 (point 2 of the Reasons) and T1511/07 (point 2.1 of the Reasons), which are confirmed by T964/09 (point 6.7 of the Reasons) and T2001/10 (point 10 of the Reasons), that when two or more new ranges are created by combining lower and upper end points of ranges, in the absence of a pointer to the combination of the selected ranges, a new technical teaching is generated.

Therefore the Board reaches the conclusion that the teaching of claim 1 of the main request goes beyond the teaching of the application as originally filed and does not fulfil the requirement of Article 123(2) EPC.

2. Auxiliary requests 1 to 3

Claim 1 of each of auxiliary requests 1 to 3 is limited by the same combination of selected parameter ranges for the Co-content, the thickness of the surface zone and the thickness of the TiC_xN_y-layers as claim 1 of the main request.

Therefore the same arguments apply as with respect to the main request.

The Board therefore comes to the conclusion that claim 1 of each of auxiliary requests 1 to 3 does not fulfil the requirement of Article 123(2) EPC.

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:

C. Spira G. Ashley

Decision electronically authenticated