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DECISION
of 16 December 2003

Case Number: T 0894/02 - 3.2.7
Application Number: 95907167.1
Publication Number: 0738336
IPC: C23C 16/40
Language of the proceedings: EN

Title of invention:
Oxide coated cutting tool

Patentee:
SANDVIK AKTIEBOLAG

Opponent:
Widia GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 84, 100(b), 111(1), 114(1), 114(2), 123(2),
123(3)

Keyword:
"Ground of opposition abandoned during the opposition
proceedings - not admitted in appeal proceedings; late filed
document - admitted"
"Novelty - main request (no), first auxiliary request (yes)"
"Inventive step (yes)"
"Remittal to first instance - (yes)"

Decisions cited:
T 0870/96, T 0059/96, T 0708/96, T 0325/93, T 0410/93,
T 0686/91, G 0010/91, T 0079/89

Catchword:
-



Case Number: T 0894/02 - 3.2.7

D E C I S I O N
of the Technical Board of Appeal 3.2.7
of 16 December 2003

Appellant: SANDVIK AKTIEBOLAG
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 11 July 2002
revoking European patent No. 0738336 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: A. Burkhart
Members: H. E. Hahn
C. Holtz

Summary of Facts and Submissions

- I. The appellant/proprietor lodged an appeal against the decision of the Opposition Division to revoke the European patent No. 0 738 336.
- II. Opposition had been filed against the patent as a whole and was based on Article 100(a) EPC (lack of novelty and lack of inventive step) and Article 100(b) EPC (lack of enabling disclosure). The latter ground had been dropped by the opponent during the oral proceedings before the Opposition Division.

The Opposition Division considered that claim 1 of all requests was clear and held that the subject-matter of the independent claim 1 was novel but that claim 1 of all requests (main, first and second auxiliary requests) lacked an inventive step with respect to the prior art documents D2/D3 and D7.

- III. The most relevant documents of the prior art submitted are considered to be:

D1: EP-A-0 403 461

D2: Proceedings of the Fourth European Conference on CVD, May 31st-June 2nd (1983), pages 410 to 420, Park et al.

D3: Proceedings of the Fourth European Conference on CVD, May 31st-June 2nd (1983), pages 400 to 409, Park et al.

D15: US-A-4 966 501

IV. Oral Proceedings were held on 16 December 2003.

(a) The appellant requested that the decision under appeal be set aside and the patent be maintained in amended form on the basis of either the main request (claims 1 to 3) or auxiliary requests 1 or 2 (claims 1 to 3 of the first or claims 1 to 2 of the second auxiliary request) all filed with letter of 17 November 2003.

(b) The respondent/opponent requested that the appeal be dismissed.

V. The independent claims 1 and 3 of the main request under consideration as filed with letter dated 17 November 2003 read as follows:

"1. A cutting tool insert of cemented carbide, titanium based carbonitride or ceramics at least partially coated with refractory layers, of which at least one layer is alumina, characterized in, that said alumina layer has a thickness of $d = 0.5-25 \mu\text{m}$ with average grain size(s):

$0.5 \mu\text{m} < s < 1 \mu\text{m}$ for $0.5 \mu\text{m} < d < 2.5 \mu\text{m}$ and

$0.5 \mu\text{m} < s < 4 \mu\text{m}$ for $2.5 \mu\text{m} < d < 25 \mu\text{m}$.

and consists of single phase α -structure textured in the (104)-direction with a texture coefficient larger than 2.5. and most preferably larger than 3.0, the texture coefficient being defined as below:

$$TC(hkl) = \frac{I(hkl)}{I_o(hkl)} \left\{ \frac{1}{n} \sum \frac{I(hkl)}{I_o(hkl)} \right\}^{-1}$$

where

$I(hkl)$ = measured intensity of the (hkl) reflection

$I_o(hkl)$ = standard intensity of the ASTM standard powder pattern diffraction area

n = number of reflections used in the calculation

(hkl) reflections used are: (012) , (104) , (110) , (113) , (024) , (116) ,

said alumina layer being an exposed outermost layer in contact with a $TiC_xN_yO_z$ -layer."

"3. Method of coating a cutting tool insert of cemented carbide, titanium based carbonitride or ceramics with an α -alumina coating, at which the insert is brought in contact with a hydrogen carrier gas containing one or more halides of aluminium and a hydrolyzing and/or oxidizing agent at high temperature, characterized in, that the oxidation potential of the CVD-reactor atmosphere prior to the nucleation of Al_2O_3 is kept at a low level using a total concentration of H_2O or other oxidizing species below 5 ppm, that the nucleation of Al_2O_3 is started up by controlled sequencing of the reactant gases that CO_2 and CO are entering the reactor first in an N_2 and/or Ar atmosphere followed by H_2 and $AlCl_3$, that the temperature is between $950-1000^\circ C$ during the nucleation and that during the growth of the Al_2O_3 a sulphur dopant is added, preferably H_2S ."

Claim 1 of the first auxiliary request differs from claim 1 of the main request by the additional feature of the alumina coating layer "and having a surface roughness of less than $0.3 \mu m$ over a measured length of $0.25 mm$ " while claim 3 of the first auxiliary request comprises the additional feature "and that the coating insert being wet blasted to smoothen the coating

surface to a surface roughness (Ra) of less than 0.3 μm over a measured length of 0.25 mm".

Claim 1 of the second auxiliary request represents a combination of the features of claims 1 and 3 of the main request.

VI. The appellant argued essentially as follows:

The amendments of claim 1, now being limited to a texture coefficient of (104) of larger than 2.5, are based on claims 1 to 3 and 5 of the originally filed application in combination with page 4, lines 16 to 20 of the description. Hence the requirements of Article 123(2) EPC are met. In order to remove the inconsistency between the term "grain size" of claim 1 as granted and the term "average grain size" which is used throughout the description (cf. originally filed application, page 4, lines 16 to 29; page 7, lines 1 to 2) the term "average grain size" was introduced into claim 1 of all requests. The skilled person can see from the whole disclosure of the patent and/or originally filed application that "average grain sizes" and not "absolute" grain sizes were meant in the sense of Article 69 EPC. Ranges of "absolute" grain sizes are not known to the skilled person and would not make sense since the grain sizes are determined by statistical methods. Such "absolute" grain sizes would have been something special and therefore would have required a counterpart in the description. Furthermore, the former term "grain size" of claim 1 includes the new term "average grain size". Therefore the proposed amendments meet the requirements of Article 123(3) EPC.

Novelty of product claim 1 of the main request should be acknowledged since documents D2 and D3 represent separate documents. The cemented carbide test plates used in the experiments of document D2 do not represent cutting tool inserts having a certain shape and dimensions. The SEM figures of the Al_2O_3 coatings according to document D2 are not suitable for grain size measurements and cannot be considered to form a representative selection. It is also not known whether a calibration of the SEM apparatus took place, or not. Claim 1 of the first auxiliary request is clearly novel due to the additional feature of the surface roughness definition.

Documents D2/D3 do not represent the closest prior art documents since they neither mention the problem underlying the patent in suit nor can give any hint to its solution. Thus, in accordance with the jurisprudence of the EPO (cf. T 870/96, T 59/96, T 708/96, T 325/93, T 410/93 and T 686/91) the skilled person would not start from documents D2/D3 but rather from either documents D1, D4 or D5. The problem to be solved is the improved machining of steel, stainless steel, cast iron and nodular cast iron as specified in the patent (cf. page 2, lines 45 to 46). Too large grains comprised in the deposited Al_2O_3 coating can cause problems during the machining operation, particularly with stainless steel since such grains can break out of the coating leading to a hole in the coating layer which reaches down to the substrate. Therefore the Al_2O_3 coating has to have a specific texture coefficient which is responsible for the adherence which is further improved by the underlying $TiC_xN_yO_z$ intermediate layer and the average grain size

of the Al_2O_3 coating is selected in a certain correlation with the thickness thereof. Furthermore, the specific surface roughness is essential for machining stainless steel in order to avoid smearing thereof. This smoothing treatment results in a reduced friction of the coating. Document D15 does not mention anything about the aforementioned specific problem of the patent in suit. Therefore the subject-matter of claim 1 is not derivable from the disclosure of documents D2/D3 and D15 in an obvious manner and thus involves an inventive step.

VII. The respondent argued essentially as follows:

None of claims 1 of the three submitted requests meets the requirement of Article 123(3) EPC because the use of the new term "average grain size" instead of the previous "grain size" causes a broadening of the scope of claim 1 since the grain size is no longer limited to the lower and upper limit values specified in claim 1 as granted. A correction under Rule 88 would not be allowable since it would collide with the requirements of Article 123(3).

During the oral proceedings before the Opposition Division it was argued that the feature $\text{TiC}_x\text{N}_y\text{O}_z$ renders claim 1 unclear since the values of x, y and z are not defined in the specification of the patent in suit. Therefore, the skilled person is not able to carry out the invention. The opposition ground under Article 100(b) EPC was not dropped during the opposition procedure and the minutes as well as the appealed decision are not correct in this respect.

The α -Al₂O₃ coated cemented carbide substrate having a TiN intermediate layer and dimensions of 10x6x3 mm, which is obtained by a CVD process according to the experiment using a mole fraction of 3.0×10^{-2} AlCl₃ as described in table II of document D2 and as shown in figure 4, has a texture coefficient TC (104) of about 2.67 and an average grain size of about 2.3 to 2.48 μ m, as calculated in accordance with the method required by the patent in suit (the average grain sizes are derivable from the document "measurements" which is based on figure 4 of document D2, which was submitted during the oral proceedings before the Board).

Document D2 refers for details of the applied CVD deposition process to document D3 (cf. D2, page 412, paragraph "Experimental") from which the thickness of the Al₂O₃ coating of said figure 4 of document D2 can be derived (cf. D3, page 407, figure 4). The thickness of said Al₂O₃ coating is about 17 μ m. Due to the composition of the cemented carbide used (WC 6 wt.% Co) it is clear to the skilled person that the coated substrate is suitable for the use as a cutting tool insert. Since claim 1 of the main request does neither define a specific shape of said insert nor specific dimensions nor specific clamping or mounting means any coated plate as the one described by document D2 meets all the requirements of claim 1 of the main request which thus lacks novelty. All arguments of the appellant concerning a deposition at a high temperature of 1150°C according to table II of D2 as well as the alleged diffusion of Co resulting therefrom are not particularly relevant since claim 1 does neither comprise such limiting features with respect to the deposition temperature nor would such diffusion take

place due to the described TiN layer which acts as a barrier layer.

Claim 1 of the first auxiliary request is rendered obvious by a combination of documents D2/D3 and D15. The documents D2/D3 represent the closest prior art since D3 mentions cutting tools and because the suitable cutting tool insert of document D2 discloses most of the features of claim 1 except the added specific surface roughness value of less than 0.3 μm . Therefore the technical problem starting from document D2 would be to improve the too high surface roughness by adjusting the same. Document D15 discloses a solution to this problem, namely barrel finishing, buff polishing, brush honing or lapping treatments in order to reduce the surface roughness to a value of at most 0.2 μm over a standard length of 5 μm (cf. column 2, lines 5 to 24; column 3, lines 14 to 21) which is comparable to the wet-blasting treatment of the patent in suit.

Reasons for the Decision

1. *Formal issues*

1.1 Admissibility of the ground of opposition according to Article 100(b) EPC

During the oral proceedings the respondent intended to re-raise the opposition ground under Article 100(b) EPC. As stated in the appealed decision (cf. facts and submissions, page 1, penultimate paragraph) and confirmed by the minutes (cf. minutes of oral

proceedings held on 12 June 2002 before the Opposition Division dated 12 July 2002; point 7) the opposition ground under Article 100(b) EPC corresponding to Article 83 EPC was abandoned during the oral proceedings before the Opposition Division.

The respondent's statement, that it had not dropped this ground and that the statements in both the minutes and the appealed decision in this respect are wrong cannot be accepted by the Board. If these allegations were true then the respondent in applying all its due care should have noted this error earlier and would have been obliged to request a correction of the said minutes in order to make this error evident. However, as apparent from the file the respondent has not submitted such a request for a correction of the minutes. Consequently, it is not evident that an error occurred.

Thus the ground of opposition under Article 100(b) EPC was not subject of the appealed decision and therefore according to the jurisprudence of the EPO represents a fresh ground of opposition in the appeal procedure in the sense of decision G 10/91. In fact, this ground was raised only during the oral proceedings before the Board. Therefore the Board is prevented from admitting this fresh ground into the appeal proceedings.

1.2 Referral to the Enlarged Board of Appeal

After closure of the debate on the issue of Article 123 EPC the Board presented its, with respect to the respondent negative, conclusion. Only thereafter, the

respondent expressed his wish to have a question referred to the Enlarged Board of Appeal.

The Board rejected this attempted request because it was submitted out of time, since the Board had already decided the issue. According to the jurisprudence of the Boards of Appeal points of law having the force of *res judicata*, cannot be referred to the Enlarged Board of Appeal (see decision T 79/89, OJ 1992, 283).

1.3 Admissibility of late filed document "measurements"

The respondent submitted during the oral proceedings for the first time a new document designated "measurements". The respondent stated that this document is highly relevant and represents its reaction to the amended claims 1 of the three requests which claims had been restricted to texture coefficients (104) of larger than 2.5. The said amended requests were submitted by the appellant only one month before the date of the oral proceedings so that this document could not be submitted much earlier. The document does not represent totally new evidence since it only comprises the results of measurements made in accordance with the patent in suit for determining the average grains sizes of the Al_2O_3 coating of figure 4 of document D2. The highly relevant texture coefficients of figure 4 were already mentioned before. These measurements were made to prove a lack of novelty of the amended claim 1.

The appellant requested that this document should not be considered because of its very late filing.

The Board considered that the sheets 1 and 4 of the document "measurements" are *prima facie* highly relevant and gave the appellant in the oral proceedings sufficient time to study the document in order to prepare its response and arguments thereto.

As a consequence the Board exercises its discretion and introduces the sheets 1 and 4 of the document "measurements" in accordance with Article 114(1) EPC into the proceedings as being *prima facie* relevant.

2. *Clarity (Article 84 EPC)*

The respondent objected claim 1 under Article 84 EPC because the term a $\text{TiC}_x\text{N}_y\text{O}_z$ -layer would render claim 1 unclear since the values of x , y and z are not defined in the specification.

These arguments cannot be accepted for the following reasons.

The Board shares the Opposition Division's view that the skilled person knows how to interpret the said feature " $\text{TiC}_x\text{N}_y\text{O}_z$ ", namely that normally each of x , y and z is within the range of from 0 and 1 and that the sum of $x+y+z=1$. This interpretation appears to be supported by the patent (cf. page 2, lines 22 to 23).

Furthermore, clarity does not represent a ground of opposition and is only considered in the opposition procedure when a clarity objection arises from an amendment of a claim. In the present case the feature in question was already comprised in claim 1 as granted

and thus cannot be objected to according to the decided case law of the Boards of Appeal.

The Board thus considers that the claims 1 of the main and first to second auxiliary request meet the requirements of Article 84 EPC.

3. *Article 123(2) and (3) EPC*

Main request

3.1 The amendments of claim 1 of the main request, now being limited to a texture coefficient of (104) of larger than 2.5, are based on claims 1 to 3 and 5 of the originally filed application in combination with page 4, lines 16 to 20 of the description. Hence the requirements of Article 123(2) EPC are met.

3.2 In order to remove an inconsistency between the term "grain size" of claim 1 as granted and the term "average grain size", which is used throughout the description (cf. originally filed application, page 4, lines 16 to 29; page 7, lines 1 to 2), the term "grain size" was replaced by "average grain size" in claim 1 of the main request.

The respondent argued that claim 1 of the three submitted requests does not meet the requirement of Article 123(3) EPC because the use of the new term "average grain size" instead of the previous "grain size" causes a broadening of the scope of claim 1 since the grain size is no longer limited to the lower and upper limit values specified in claim 1 as granted. A correction under Rule 88 would not be allowable since

it would collide with the requirements of Article 123(3). These arguments cannot be accepted for the following reasons.

The Board concurs with the appellant that the skilled person could see from the whole disclosure of the patent and/or the originally filed application that "average grain sizes" and nothing else, particularly no "absolute" grain sizes were meant. Ranges of "absolute" grain sizes are not known to the skilled person and technically would also not make any sense. This fact had been admitted by the respondent (cf. letter of 4 March 2003, page 4, penultimate paragraph to page 5, first paragraph) since the grain sizes are determined by statistical methods so that "absolute" grain size values in reality cannot be determined. Such "absolute" grain sizes would have been something very special and therefore would have required a counterpart in the description. Therefore it is evident that the skilled person actually would have interpreted claim 1 in the sense of Article 69(1) EPC as only having the meaning of "average grain sizes".

Furthermore, the proposed amendment is in agreement with the case law of the Boards of Appeal (cf. Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001, chapter III.B.2).

Therefore the Board considers that the amendment "average grain size" to claim 1 does not contravene Article 123(3) EPC.

3.3 First auxiliary request

Claim 1 of the first auxiliary request differs from claim 1 of the main request by the additional feature of the alumina coating layer "and having a surface roughness of less than 0.3 μm over a measured length of 0.25 mm" which can be found at page 5, lines 13 to 16 of the originally filed application.

The conclusion of paragraph 3.2 applies *mutatis mutandis* to claim 1 of the first auxiliary request which comprises the identical amendment "average grain size".

The Board therefore considers that claim 1 of the first auxiliary request meets the requirements of Article 123(2) and (3) EPC.

4. Novelty

Main request

4.1 Novelty of product claim 1 of the main request was disputed by the respondent with respect to documents D2 and D3. Document D2 discloses the deposition of aluminium oxide coatings by a CVD process onto TiN coated cemented carbide substrates (WC-6 wt.% Co) using AlCl_3 , CO_2 and H_2 which according to figures 4 of D2 resulted in texture coefficients (104) of above 3.0 over the first 8 reflections for the mole ratios $x_{\text{AlCl}_3} = 1.0 \times 10^{-2}$ and 3.0×10^{-2} (cf. D2, page 417, figures 4, table II). When recalculated in the manner of claim 1 this results in texture coefficients (104) of about

2.988 and of about 2.67 over the first 6 reflections (cf. D2, page 417, handwritten remarks).

Thus the cemented carbide of D2 has a Al_2O_3 coating meeting the texture coefficient requirement of TC (104) of larger than 2.5 and is deposited on an intermediate TiN layer, which represents a compound falling under the definition " $\text{TiC}_x\text{N}_y\text{O}_z$ " of claim 1.

- 4.2 It is clear that documents D2 and D3 represent separate documents although they originate from the same authors and at least partially relate to the same experiments. However, D3 has to be read as being "incorporated by reference" into D2 for the deposition procedure of the aluminium oxide coatings (cf. D2, page 412, "Experimental", first paragraph) whereby the thickness of the Al_2O_3 coating according to figure 4 of D2 can be derived from document D3 which thickness is about 17 μm (cf. page 407, figure 4).

Thus the Al_2O_3 coating layer according to figure 4 of document D2 has a thickness falling within the range of 0.5 to 25 μm of claim 1.

- 4.3 As can be concluded from the two grain size measurements made by the respondent in accordance with the statistical method as described in the patent in suit (cf. patent, page 3, lines 8 to 10), the Al_2O_3 coating of figure 4 (AlCl_3 mole fraction 3.0×10^{-2}) of D2 has an average grain size of 2.3 μm or of 2.48 μm , respectively (cf. document "measurements", sheets 1 and 4). The appellant admitted that the average grain size determination method in accordance with the patent has been correctly applied.

However, the appellant argued that the SEM pictures of figure 4 according to document D2 are not suitable for grain size measurements and cannot be considered to form a representative selection. It seems to be chosen arbitrarily. Furthermore, it is also not known whether a calibration of the SEM apparatus took place, or not.

These arguments cannot be accepted for the following reasons. First of all, the said pictures carry a measuring unit for the length as is usual for SEM pictures. Secondly, due to the applied physical method of the SEM apparatus it is necessary to calibrate or re-calibrate the apparatus continuously. Thirdly, it is not plausible as to why the Al_2O_3 coating obtained according to figure 4 of D2 should not form a representative selection of the coating. It would be surprising if the said coating on the small substrate would not be homogenous. Furthermore, the patent is also silent with respect to a specific surface area to be measured.

Thus the Board concludes that the Al_2O_3 coating has average grain sizes in the range of about 2.3 to 2.48 μm so that in combination with the thickness of the Al_2O_3 layer of about 17 μm the requirement of the second alternative of the average grain size/thickness correlation of claim 1 is also met by document D2.

4.4 The appellant argued that the cemented carbide test plates used in the experiments of document D2 do not represent cutting tool inserts having a certain shape and dimensions. Document D2 does not explicitly mention

any cutting insert while D3 mentions the same but only in the context of the prior art (cf. page 401).

The Board concurs with the respondent and cannot identify any distinguishing features between claim 1 defining an "alumina coated cemented carbide cutting insert" and the "alumina coated cemented carbide plate having dimensions of 10x6x3 mm" as disclosed in document D2. The alloy of the cemented carbide (WC-6 wt.% Co) represents a typical one used as substrate for cutting inserts. Furthermore, claim 1 does neither require any specific geometry of the said insert nor any size thereof. There exist many types of cutting inserts which may have different shapes and geometries including simple plates which are clamped to a tool holder. The described coated cemented carbide plates are considered to be suitable for the use as a cutting tool insert, particularly since claim 1 is not restricted to any material to be machined.

All arguments of the appellant concerning a deposition at a high temperature of 1150°C according to table II of D2 as well as the alleged diffusion of Co resulting therefrom cannot be accepted by the Board since claim 1 does neither comprise such limiting features with respect to the deposition temperature nor is such diffusion likely due to the described TiN layer which acts as a barrier layer.

Therefore the Board concludes that the Al₂O₃ coated cemented carbide according to figure 4 of document D2 comprises all the features of claim 1 of the main request. The subject-matter of claim 1 thus lacks

novelty and the main request is therefore not allowable.

First auxiliary request

4.5 Novelty of product claim 1 of the first auxiliary request was undisputed since none of the submitted documents discloses an Al_2O_3 coating having the required texture coefficient (104) with the required average grain size/thickness correlation in combination with the surface roughness as defined in claim 1.

The Board therefore concludes that the subject-matter of product claim 1 of the first auxiliary request is novel.

5. *Inventive step*

Closest prior art

5.1 The respondent argued that documents D2/D3 represent the closest prior art, because the Al_2O_3 coated substrate of figure 4 according to D2 reveals all features of claim 1 except the feature that " the surface roughness of less than $0.3 \mu\text{m}$ over a measured length of 0.25 mm ".

5.2 The Board cannot accept these view and concurs with the appellant that the documents D2 and D3 neither mention the problem underlying the patent in suit nor give any hint towards its solution. The documents D2 and D3 only represent scientific documents which are concerned with effects of reaction conditions and parameters on the crystallographic orientation and morphology of CVD Al_2O_3 .

Both documents are not concerned with the production of cutting tools, although the skilled person knows that such Al_2O_3 coated cemented carbide substrates can be used as cutting tools (cf. D3, page 401, first and second paragraphs). However, neither document D2 nor D3 discloses results of machining tests made with the described Al_2O_3 coated substrates at all, let alone with stainless steel or cast iron. Thus, the skilled person is, without knowing the teaching of the patent in suit, not aware of the fact that specific textures of the Al_2O_3 coating in combination with a range of average grain sizes correlated to the thickness of the coating are advantageous, compared with other coatings, for specific machining operations. Documents D2 and D3 are totally silent in this respect.

Therefore the skilled person has no incentive to select the documents D2 and D3 as a starting point at all, let alone the specific sample of figure 4 of D2 out of the totality of 16 coated substrates.

In accordance with the jurisprudence of the Boards of Appeal (cf. Case Law of the Boards of Appeal of the European Patent Office, 4th edition 2001, chapter I.D.3.3 and 3.4; see decisions T 870/96, T 59/96, T 708/96, T 325/93, T 410/93 and T 686/91) the Board concludes that the skilled person would not start from documents D2 and/or D3. Rather the skilled person would chose any other document such as e.g. D1, D4 or D5 than D2/D3.

Consequently, all arguments of the respondent, which are based on document D2/D3 as the closes prior art, cannot be accepted.

6. *Problem to be solved*

The Board concurs with the appellant that the problem to be solved is the provision of a coated cutting tool insert as known from document D1 for improved machining of steel, stainless steel, cast iron and nodular cast iron as specified in the patent (cf. page 2, lines 45 to 46).

7. *Solution to the problem*

The problem is solved by a cutting tool insert as defined in claim 1 of the first auxiliary request, in particular by the combination of the features requiring a texture coefficient (104), a specific grain size/thickness correlation and a specific surface roughness.

The invention of the patent in suit has found that the Al_2O_3 coating has to have a specific texture coefficient which is responsible for the adherence which is further improved by the underlying $\text{TiC}_x\text{N}_y\text{O}_z$ layer, additionally, that the range of the average grain size of the Al_2O_3 coating has to be selected in a certain manner to correlate with the thickness range of the coating, and furthermore, that the specific surface roughness is essential for machining stainless steel in order to avoid smearing and it results in a reduced friction of the coating.

As demonstrated by the patent in suit through comparative machining results of cutting tool inserts made in accordance with the invention and with

comparative examples it is credible that the claimed measures provide an effective solution to the technical problem (cf. patent, examples 1 to 2).

8. All other documents submitted are less relevant than documents D2 and D3 and neither disclose the specific texture coefficients of the Al_2O_3 coating (which additionally does not always consist of $\alpha\text{-Al}_2\text{O}_3$) nor the average grain sizes as required by claim 1. Thus any combination of the other documents does not allow to arrive at the subject-matter claimed.
9. The Board therefore concludes that the subject-matter of claim 1 of the first auxiliary request 3 is not obvious for the person skilled in the art.
10. The subject-matter of the independent claim 1 of the first auxiliary request thus involves an inventive step within the meaning of Article 56 EPC.

The same applies to the subject-matter of the dependent claim 2 which defines a further preferred embodiment of the cutting tool insert according to claim 1.

Remittal to the first instance

11. As is apparent from the appealed decision, the Opposition Division has not yet examined the independent process claim 3. Therefore, in order to give the parties the opportunity to have their case considered without loss of an instance the Board considers it appropriate to exercise its discretion under Article 111(1) EPC to remit the case to the Opposition Division for further prosecution, i.e. to

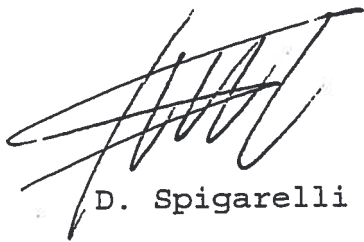
examine whether the independent process claim meets the requirements of the EPC.

Order

For these reasons it is decided that:

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

The Registrar:



D. Spigarelli



The Chairman:



A. Burkhardt