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**Datasheet for the decision
of 8 October 2024**

Case Number: T 1199/22 - 3.3.05

Application Number: 13825655.7

Publication Number: 2881478

IPC: C22C21/00, C22F1/04, B32B15/01,
B65D1/00, B65D65/40, B65D75/32,
H01M2/02

Language of the proceedings: EN

Title of invention:
ALUMINUM ALLOY FOIL AND METHOD FOR PRODUCING SAME

Patent Proprietor:
UACJ Corporation

Opponents:
1.Carcano Antonio S.p.A.
2.Constantia Teich GmbH
3.Speira GmbH
4.AMAG rolling GmbH

Headword:
Aluminium alloy foil/UACJ

Relevant legal provisions:

EPC Art. 54(1), 54(2), 123(2), 83, 84, 117(1)

EPC R. 103(1)(a)

RPBA 2020 Art. 11, 12

Keyword:

Request for being provided with samples - no legal basis
Novelty - main request (no) - prior use - auxiliary request 1
(no) - prior use
Amendments - auxiliary request 2 - added subject-matter (no)
Claims - clarity - auxiliary request 2 (yes)
Sufficiency of disclosure - auxiliary request 2 (yes)
Certain objections taken into consideration - (no)
Further alleged prior use - not all witnesses heard
Remittal to hear witnesses
Substantial procedural violation - (no)

Decisions cited:

T 0219/83, T 0270/90, T 0716/06, T 1320/13, T 1418/17,

T 2037/18, T 0042/19, G 0003/14, G 0010/91

Catchword:



Beschwerdekammern

Boards of Appeal

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Case Number: T 1199/22 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 8 October 2024

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
15 March 2022 concerning maintenance of the
European Patent No. 2881478 in amended form.**

Composition of the Board:

Chairman E. Bendl
Members: S. Besselmann
O. Loizou
G. Glod
S. Fernández de Córdoba

Summary of Facts and Submissions

- I. The appeals in this case, filed by the patent proprietor and by opponents 2, 3 and 4, lie from the opposition division's interlocutory decision according to which European patent EP 2 881 478 B1 in amended form on the basis of auxiliary request 2 met the requirements of the EPC.
- II. The patent in suit concerns an aluminium alloy foil and a method for producing same.
- III. Claim 1 of the patent as granted reads as follows:
"An aluminum alloy foil (8), consisting of:

*0.8 to 2.0 mass% of Fe, 0.05 to 0.2 mass% of Si, and 0.0025 to 0.5 mass% of Cu, with the rest consisting of Al and 0.15 mass% or less of unavoidable impurities, wherein a content of each of the unavoidable impurities is 0.05 mass% or less, **characterized in that** the aluminum alloy foil has an average crystal grain size of 13µm or less, wherein the number of intermetallic compounds existing in the aluminum alloy foil, the intermetallic compounds having a circle equivalent diameter of 1.0 to 5.0µm, is 1.5×10^4 grains/mm² or more."*
- IV. Claim 1 of auxiliary request 1 differs from claim 1 of the patent as granted in that a lower limit of the average crystal grain size is specified, as follows:
"...the aluminum alloy foil has an average crystal grain size of 5µm or more and 13µm or less..." (insertion underlined by the board).

V. Claim 1 of auxiliary request 2 differs from claim 1 of the patent as granted in that the following wording is added at the end of the claim:

" , and wherein an average value of tensile strength of the aluminum alloy foil in 0 degrees, 45 degrees, and 90 degrees with respect to the rolling direction is 100 N/mm² or higher".

Claims 2 to 5 depend directly or indirectly on claim 1. Claim 6 relates to a method for manufacturing the aluminium alloy foil (8) of claim 1.

VI. During the appeal proceedings, the opponents relied on the following alleged public prior uses.

Prior use "Carcano/Constantia Patz"

Alleged prior use of aluminium alloy foils "1012/1" and "138/1" through sale by Carcano Antonio S.p.A.

(opponent 1) to Constantia Patz GmbH, supported, *inter alia*, by testimonies of witnesses (Mr Fabrizio, Mr Orio, Ms Rigamonti, Mr Gilardoni and Mr Albonico),

the supporting documents including

D13 University of Padova's report -

"Microstructural characterization of Aluminum foils"

Prior use "AMAG/Constantia Teich"

Alleged prior use through delivery of pre-rolled strips "BNr. 57920" and "BNr. 57145" from AMAG rolling GmbH

(opponent 4) to Teich AG (predecessor of Constantia Teich GmbH, opponent 2), further processing to aluminium foils by Teich AG and delivery of the aluminium foils to various customers,

supported, *inter alia*, by testimonies of witnesses
(Mr Steckenbauer, Mr Santora, Mr Doberer)
and documents

- D21 Affidavit of Mr Santora (with annexes a to f)
- D22 Affidavit of Mr Steckenbauer
- D23 Affidavit of Mr Doberer (with annexes a to g)

Prior use "Hydro/Amcor"

Alleged prior use of aluminium foils through delivery
from Hydro Aluminium Rolled Products GmbH (opponent 3,
now Speira GmbH) to Amcor Flexibles Kreuzlingen AG,
supported by witness testimony (of Ms Kuhnke) and
documents D31-D37:

- D31 Email concerning the delivery of Amcor Folie
- D32 Quantitative particle size analysis Amcor
Folie
- D33 Analysis cast phases Amcor Folie
- D34-D37 Packing lists

Prior use "Hydro/Hueck"

Alleged prior use through delivery of aluminium foils
from Hydro Aluminium Rolled Products GmbH (opponent 3,
now Speira GmbH) to Hueck Folien,
supported by testimonies of witnesses (Ms Kuhnke and
Mr Hasenclever), the offer of the witnesses Mr Weist
and Mr Schubert, and documents D24-D30:

- D24 Presentation Hueck Technical Meeting in
Grevenbroich, 24-25 June 2003
- D25 Emails concerning appointment Hueck technical
meeting
- D26 Emails concerning delivery of presentation
Hueck technical meeting
- D27 Wet analysis Hueck Folie
- D27a Cutting list Hueck Folie
- D28 Metallography Hueck Folie

- D29 Materials testing (Werkstoffprüfung) Hueck Folie
- D30 Analysis cast phases Hueck Folie

VII. The following further documents, cited during opposition proceedings, are also of relevance here.

- D3 WO 2012/036181 A1
- D3c translation of the description of D3 into German;
automatic translation of family member JP 58 41537 B into English.
- D8 JP 2006 312768 A
- D8b translation of the description of D8 into German;
automatic translation into English
- D68 DIN EN 546-2 Norm, pages 120-125 (1996)

VIII. The following documents, *inter alia*, were submitted during the appeal proceedings.

(by opponent 2)

- D72 JIS H 4000-2006 (in Japanese language)
- D73 Excel data, calculation of average value

IX. The patent proprietor's arguments, where relevant to the present decision, can be summarised as follows.

Main request and auxiliary request 1

The alleged prior use "Hydro/Amcor" was not proven. Moreover, it did not anticipate the aluminium alloy foils as claimed in the main request and in auxiliary

request 1 because the impurity contents were not specified.

Auxiliary request 2

The opposition division should not have admitted the ground for opposition pursuant to Article 100(c) EPC into the proceedings and the objections raised on that basis should be disregarded. Moreover, auxiliary request 2 met the requirements of Article 123(2) EPC.

Several of the objections of lack of clarity and lack of sufficiency of disclosure had been newly raised in the appeal proceedings and should be disregarded. In any case, the amendments did not result in any lack of clarity. The invention was also sufficiently disclosed.

Opponent 2's objection under Article 53(a) EPC actually related to novelty. Moreover, it was filed late and should not be admitted into the proceedings.

The claimed aluminium alloy foils were novel over D3 and D8. As regards D8, no substantiation had been provided as to why the opposition division's conclusion should be considered incorrect.

The other alleged prior uses "AMAG/Constantia Teich", "Carcano Antonio/Constantia Patz" and Hydro/Hueck" did not form part of the state of the art either. The novelty objections based on "Carcano Antonio/Constantia Patz" and "AMAG/Constantia Teich" had not been raised during opposition proceedings and should be disregarded. Moreover, none of the alleged prior uses anticipated the claimed subject-matter.

As regards "Hydro/Hueck", the opposition division had been correct not to hear the witnesses Mr Weist and Mr Schubert. Opponent 3 had not sufficiently indicated what and how these witnesses could have testified in relation to the alleged delivery; "contents of the meeting" referred to the mere fact that the presentation D24 had been shown during the meeting. Opponent 3 had failed to react to the opposition division's conclusion not to summon the witnesses Mr Weist and Mr Schubert, even though there were objections - including those of the opposition division in its preliminary opinion - that the prior use had not been proven. It was not justified to remit the case to the opposition division. Moreover, there were inconsistencies in the documents cited in support of the alleged prior use.

Furthermore, the opponents should be ordered to provide the patent proprietor with samples for measurement.

- X. The arguments raised by opponents 1-4, where relevant to the present decision, can be combined and summarised as follows.

Main request and auxiliary request 1

The subject-matter of claim 1 in the main request and in auxiliary request 1 was not novel in view of the prior use "Hydro/Amcor". The amendment in auxiliary request 1 furthermore infringed Article 123(2) EPC.

Auxiliary request 2

The subject-matter of claims 1 and 6 as well as paragraphs [0036]-[0039] of the description extended

beyond the content of the application as originally filed.

The amendments had the consequence that independent method claim 6, which referred back to claim 1, lacked clarity (Article 84 EPC). Conversely, the method definition also affected the meaning of claim 1, resulting in lack of clarity of that claim also in relation to the "average crystal grain size" and "average tensile strength" parameters.

The requirements of Article 83 EPC were not met either. The skilled person was unable to carry out the invention across the entire scope claimed because the claimed method steps did not necessarily result in the required foil. Insufficient disclosure also resulted from the lack of clarity. Furthermore, the skilled person would be unable to determine the average crystal grain size.

The claimed invention should be excepted from patentability pursuant to Article 53(a) EPC because it aimed to prohibit the generally known alloy 8021.

The subject-matter of claim 1 lacked novelty in view of examples 9 and 25 of D3. The objection of lack of novelty in view of D8 was also maintained. Furthermore, each of the prior uses "Hydro/Amcor", "AMAG/Constantia Teich" (also having regard to the measurement results reported in D73), "Carcano Antonio/Constantia Patz" and "Hydro/Hueck" took away the novelty of claim 1.

Opponent 4 renewed their request for a foil sample to be inspected in relation to the prior use "AMAG/Constantia Teich".

Moreover, the prior use "Hydro/Hueck" was in fact prior art. The opposition division should have heard the witnesses Mr Weist and Mr Schubert.

Not hearing these witnesses constituted a violation of opponent 3's right to be heard and was decisive for the outcome of the case. This justified reimbursement of the appeal fee.

Opponent 2 invoked alleged procedural violations because the opposition division had not fully applied the problem-solution approach and documents D68 and D72 had not been admitted. They also requested reimbursement of the appeal fee.

XI. Appellant 1 (patent proprietor) requested that the decision under appeal be set aside and the oppositions be rejected (main request), or, alternatively, that the patent be maintained in amended form on the basis of one of auxiliary requests 1 to 12 filed on 3 July 2020 during opposition proceedings, auxiliary request 2 being the request allowed by the opposition division i.e. dismissal of the opponents' appeals.

Appellants 2-4 (opponents 2-4) requested that the decision under appeal be set aside and the patent be revoked.

Appellants 2-4 (opponents 2-4) requested the remittal of the case to the department of first instance.

Appellants 2 and 3 (opponents 2 and 3) requested reimbursement of the appeal fee.

The respondent (opponent 1) requested that the appeal of the patent proprietor be dismissed.

Reasons for the Decision

1. Request for provision of evidence
 - 1.1 The patent proprietor reiterated their request that the opponents be ordered to provide the patent proprietor with samples for measurement (point II of the statement of grounds of appeal). The opposition division held that there was no legal basis in the EPC for such orders (point 1.6 of the impugned decision) and emphasised that the opposition division decides on the basis of the evidence before it. This finding is correct. Each party has the burden of presenting and proving the facts that support its own assertions (Case Law of the Boards of Appeal of the EPO, 10th edn., 2022, III.G.1, with reference to T 2037/18, T 219/83 and T 270/90). In particular, no legal basis for such orders derives solely from the fact that Article 117(1) EPC does not contain an exhaustive list of means of giving or obtaining evidence, in contrast to the patent proprietor's arguments.

Main request (patent as granted)

2. Novelty
 - 2.1 According to the impugned decision, the subject-matter of claim 1 was not novel in view of the prior use "Hydro/Amcor" (point 2.5.1). This prior use formed part of the state of the art in view of D31-D37 and the testimony of Ms Kuhnke (point 2.4.1 of the impugned decision).

- 2.2 The patent proprietor submitted several arguments in support of their opinion that the public prior use "Hydro/Amcor" was not sufficiently proven.
- 2.3 According to T 42/19 (Reasons 3.2), with reference to T 1418/17, regarding the review by a board of the evaluation of evidence carried out by a deciding body of first instance, the principle of free evaluation of evidence applies to all departments of the EPO and thus also impacts the review in appeal proceedings. Unless the law has been misapplied (e.g. application of the wrong standard of proof), a board of appeal should therefore overrule a department of first instance's evaluation of evidence and replace it with its own only if it is apparent from the evaluation by that department that the latter: (i) disregarded essential points, (ii) also considered irrelevant matters or (iii) violated laws of thought, for instance in the form of logical errors or contradictions in its reasoning (see T 1418/17, Reasons 1.3).
- 2.4 As set out below, the patent proprietor's arguments do not demonstrate any such deficiencies in the opposition division's evaluation, and nor are any apparent to the board.
- 2.4.1 Specifically, the patent proprietor argued that the dates in D31 did not match those in D34-D37.

However, in line with the opposition division's findings, the aluminium foil can be identified by its roll number ("Band-Nr.") as a unique identifier, which is the same in the table of D31 and in the relevant document of D34-D37, D31 being an email to confirm the actual deliveries of four rolls and their subsequent

use, and each of D34-D37 being a compilation of a "Packliste" stating the roll number, an "Abnahmeprüfzeugnis" also stating the roll number, and a status report printed from Amcor's electronic system. The respective order numbers in D31 and the relevant parts of D34-D37 are also identical. It is therefore not convincing that a difference of a few days between the delivery date indicated on the "Packliste" and that in the electronic system (e.g. D31, roll number 20055740000006, delivery date 12 January 2011 in the electronic system and in D31, versus delivery date 10 January 2011 in "Packliste" D34) would give rise to any doubt as to whether the rolls were actually delivered. There may be doubt as to the precise date of receipt, but this is not decisive in the present case, considering that the alleged prior use occurred 1.5 years before the priority date of the patent in suit.

- 2.4.2 The patent proprietor also observed that a different alloy designation (namely 8079) was indicated in D31 from that in D34-D37 (namely 8021).

However, it was undisputed that the two alloy designations overlap. They can thus be referring to the same product, as was concluded by the opposition division. The specific alloys under consideration comply with both alloy designations.

- 2.4.3 The patent proprietor also argued that the origin and the authenticity of the material used for testing in 2018 (D32, D33) were highly doubtful. The patent proprietor did not question the witness' credibility, but was of the opinion that the witness Ms Kuhnke had no personal knowledge of whether the samples M2, M3, M5

and M6 were from the relevant roll numbers, and submitted that no other proof had been provided.

However, Ms Kuhnke did explain from her personal knowledge that there was a system in place to identify the samples with stickers indicating the roll number, and that there was an additional plausibility check. She also testified that Mr Schubert had personally brought in the samples in question.

2.5 For these reasons, there is no reason for the board to deviate from the opposition division's conclusion that the prior use "Hydro/Amcor" with roll numbers 20055740000006, 20055770000008, 20055760000002 and 20064802000005 formed part of the state of the art.

2.6 These rolls were foils having a thickness of 45 μm (D31, D34-D37), a chemical composition within the scope of the claim (D34-D37) and an average crystal grain size (D32) as well as a number of intermetallic compounds (D33) within the claimed ranges.

The patent proprietor contested the opposition division's finding that it was "within the knowledge of the skilled person that the claimed impurities are at standard levels". According to the patent proprietor, it was not proven that the known foils fulfilled the requirements as to the impurity contents.

However, the impurity contents may be considered to be implicit in view of the indicated alloy designation (D34-D37), namely alloy 8021. This is confirmed by the standard alloy composition specified in the table on page 4 of opponent 3's notice of opposition (same on page 4 of opponent 3's statement of grounds of appeal), on which the patent proprietor also relies (patent

proprietor's statement of grounds of appeal, page 38). The same conclusion applies to the alternative alloy designation 8079 mentioned in D31.

- 2.7 There is thus no reason for the board to deviate from the opposition division's decision that the subject-matter of claim 1 lacked novelty.

Auxiliary request 1

3. Novelty

- 3.1 The amendment in claim 1 of auxiliary request 1 - irrespective of the question of its compliance with Article 123(2) EPC - does not provide any delimitation from the prior use "Hydro/Amcor" and, in particular, from the known average crystal grain size of 11 μm , 12 μm and 13 μm reported in D32.

- 3.2 The subject-matter of claim 1 lacks novelty for the same reasons as set out with regard to the main request.

Auxiliary request 2

4. Article 123(2) EPC

- 4.1 The patent proprietor requested that the objections be disregarded in so far as they concerned the ground of opposition pursuant to Article 100(c) EPC, which - in the patent proprietor's view - the opposition division should not have admitted into the proceedings (point 1.2 of the impugned decision).

There was no need to address this request, because the objections are not convincing in substance, as shown below.

4.2 Claim 1

4.2.1 Opponent 3 was of the view that the combination of features in claim 1, specifying an average crystal grain size of 13 μm or less and a number of intermetallic compounds having a circle equivalent diameter of 1.0 μm to 5.0 μm of 1.5 $\times 10^4$ grains/ mm^2 or more, extended beyond the content of the application as originally filed. Opponent 3 cited T 1320/13 in support of this objection.

4.2.2 In the application as originally filed, a value of 13 is included in a list of possible values (paragraph [0023], corresponding to paragraph [0030] of the A-publication). It is clear from the indication "or 20 μm or less" at the end of the list, which is the only reference to the unit " μm " in the list, that the mention of "13" is to be understood as "13 μm or less", i.e. as a possible end value of a range. The express indication that the average crystal grain size *may be in the range of two values selected from the values exemplified* confirms this understanding. Amending the range of "20 μm or less" in claim 1 as originally filed to "13 μm or less" thus involves a single selection from the list of originally disclosed values.

This case thus differs from T 1320/13, in which a list of individually disclosed values of ratios could not be regarded as individual end-points of ranges (Reasons 13).

The other amendment (specifying a value 1.5 x 10⁴ grains/mm² or more, compared with a value of 1.0 x 10⁴ grains/mm² or more in claim 1 in the application as originally filed) does not involve any additional selection, because the range of 1.5 x 10⁴ grains/mm² or more is the preferred range (paragraph [0024] of the application as originally filed). There is thus a clear pointer to the claimed range. While alternative values are also indicated, they are not stated to be preferred.

4.2.3 Moreover, the examples as a whole also show that the best results in terms of the square cup drawing test and the mechanical properties (tensile strength, yield strength) are obtained with those samples which have an average grain size and a number of intermetallic compounds as claimed (compare examples 5-19 with 1-4). The examples thus constitute an additional pointer.

4.2.4 Claim 1 has been limited on the basis of claim 2 as granted. Inserting the subject-matter of claim 2, which is identical to claim 2 as originally filed, does not constitute an additional arbitrary selection. This is also clear from paragraph [0025] of the application as originally filed.

4.2.5 The subject-matter of claim 1 therefore complies with the requirements of Article 123(2) EPC.

4.3 Claim 6

4.3.1 Claim 6 is based on claim 7 as granted (which was not objected to under Article 100(c) EPC), limited by inserting the feature "at 250 to 400°C for 5 hours or more with a rate of temperature increase of 50°C/hr or less" into the final annealing step.

This feature has been disclosed in paragraph [0034] of the application as originally filed.

Opponents 3 and 4 submitted that this feature was inextricably linked to obtaining complete recrystallisation and to volatilising the rolling oil (thus also implying the use of rolling oil). However, these are effects of the annealing step, which are merely indicated to support the choice of the process conditions. They are not disclosed as an additional functional limitation of the method step. In this case, there is consequently no need to additionally include these effects in the claim.

4.3.2 The subject-matter of claim 6 therefore complies with the requirements of Article 123(2) EPC.

4.4 Description

4.4.1 Opponent 3 furthermore argued that the amendments in paragraphs [0036] and [0037] of the description extended beyond the content of the application as originally filed, because the effects were now linked to different values of the average crystal grain size and of the number of intermetallic compounds, respectively.

4.4.2 In the application as originally filed (paragraph [0023], on which paragraph [0036] in the patent as granted is based), it is explained that the average crystal grain size is influenced largely by the added elements and by the manufacturing conditions. The number of intermetallic compounds is one of the factors that are stated to have a large influence. It is indicated that intermetallic compounds having a circle

equivalent diameter of 1.0 to 5.0 μm are to be present by 1.0×10^4 grains/ mm^2 in order to allow recrystallisation with fine crystal grain size during final annealing.

Opponent 3 was of the opinion that this value of 1.0×10^4 grains/ mm^2 was to be understood as a threshold value which triggered the effect sought.

However, it is the board's view that, in the light of the disclosure as a whole, the skilled person would instead understand that there is a correlation of the number of intermetallic compounds (and other parameters) with the average crystal grain size, and that this is the reason why the number of intermetallic compounds is specified as a feature of the claimed invention. Furthermore, it is also disclosed that the number of intermetallic compounds is preferably 1.5×10^4 grains/ mm^2 or more (paragraph [0024] of the application as originally filed), meaning that this preferred value likewise allows recrystallisation with fine crystal grain size.

The same considerations apply to paragraphs [0038] and [0039] of the patent as granted, in which the number of intermetallic compounds has been amended to the preferred range of 1.5×10^4 or more, compared with the original disclosure in paragraph [0024] of the application as originally filed.

- 4.4.3 Similar considerations also apply to paragraph [0037] of the patent as granted, which is based on paragraph [0023] of the application as originally filed. This paragraph describes an influence of the average crystal grain size in relative terms, namely indicating that, when the average crystal grain size exceeds 20 μm , the

number of crystal grains occupying the cross-sectional plane in the direction of the sheet thickness "*becomes less*". It is also stated that "*when the average crystal grain size ... is large, the adhesion property with the resin film ... decreases*". Again, the skilled person would not understand this disclosure in the sense of a threshold value of 20 μm at which a steep change of properties occurs. Instead, they would understand it in the sense of a gradual change in the average crystal grain size with the number of crystal grains in the cross-sectional plane, and thus with the associated effects, such as formability. This implies that the stated effects are also obtained with smaller values of the average crystal grain size, such as 13 μm (which, as such, has been disclosed in the application as originally filed - see point 4.2.2).

This understanding in the sense of a gradual trend also derives from the disclosure that "*the more the number of these intermetallic compounds, the finer the crystal grain diameter ... becomes*", that "*[a]ccordingly, the strength of the aluminium alloy film can be improved, allowing easier uniform deformation when the square-cup drawing test is conducted*" and that "*therefore, formability is improved*" (paragraph [0024] of the application as originally filed).

- 4.4.4 By contrast with opponent 3's view as put forward during oral proceedings, the examples do not lead to any different conclusion. Examples 1-4, which are comparative examples and have an average crystal grain size greater than 13 μm , have, indeed, the same results in the square cup drawing test as the lowest-performing invention examples. However, they cannot be directly compared, as a number of parameters have been varied. Moreover, the invention examples (Examples 5-19)

exhibit the best results overall, as indicated (see point 4.2.3).

4.4.5 For these reasons, paragraphs [0036]-[0039] of the patent as granted, which are the same in the description of auxiliary request 2, do not extend beyond the content of the application as originally filed.

4.5 In summary, the requirements of Article 123(2) EPC are met.

5. Clarity

5.1 Following G 3/14 (Catchword), the claims of the patent may be examined for compliance with the requirements of Article 84 EPC only when - and then only to the extent that - the amendment introduces non-compliance with Article 84 EPC.

5.2 An objection of lack of clarity was raised against claim 6, because it allegedly did not contain all the essential features necessary to arrive at the foil of claim 1.

5.3 Claim 6 has been derived from claim 7 as granted. However, claim 7 as granted already referred back to claim 2 as granted (i.e. to the claim corresponding to the current claim 1). The consideration that the method claim might not contain all the essential features necessary to produce the claimed foil thus already applied to claim 7 as granted. Compared with the method claim as granted, the method in claim 6 of auxiliary request 2 has been more specifically defined. The newly introduced features, in fact, contribute to steering

the method towards the claimed foil. It is not apparent how any possible lack of essential features could have been caused by this limiting amendment of the patent as granted.

5.4 Likewise, any possible lack of clarity of the average crystal grain size, for which no measuring method is specified in the claim, already concerned the claims as granted, which specified this same feature (average crystal grain size of 13 μm or less). Furthermore, the argument that the clarity of this parameter was affected by the insertion of the annealing-step conditions in method claim 6 is not convincing. It cannot be seen how the annealing-step conditions could affect the meaning of the "average crystal grain size" parameter.

5.5 Opponent 2's objection that claim 1 was a "product by success" claim - meaning a definition in terms of a desired result to be achieved - did not follow from an amendment of the patent as granted, considering that claim 1 corresponds to claim 2 as granted. This also applies to the assertion that claim 1 had been changed to a product-by-process claim - which, moreover, is incorrect because claim 1 does not specify any manufacturing step. The objections that the claim was unclear in view of the reference to an *average* tensile strength and in view of the fact that no measuring method was indicated for this parameter do not relate to any amendment either, irrespective of the question of whether these objections, which apparently were not raised during opposition proceedings, should be taken into consideration.

5.6 In conclusion, the objections of lack of clarity are not convincing.

6. Article 83 EPC

6.1 Opponent 3 argued that the skilled person was unable to carry out the invention across the entire scope claimed, because (comparative) examples 1-4 and 34 evidenced that the claimed method steps did not enable the skilled person to obtain the required foil.

6.2 (Comparative) examples 1-4 and 34 are outside of the scope of the claim in view of the average crystal grain size being too high and the number of intermetallic compounds being too low. There is no evidence that the skilled person would be unable to modify these examples, on the basis of the numerous examples illustrating the invention (examples 5-19) and the general teaching in the patent in suit regarding the manufacturing method (paragraphs [0048]-[0057]), to obtain a foil within the scope of the claim. As regards (comparative) example 34, there is even the concrete teaching that "*the final annealing temperature was high, and thus the average crystal grain size became large*" (paragraph [0098]), suggesting that a lower annealing temperature might lead to a smaller average crystal grain size.

Furthermore, the requirement that the skilled person should be able to carry out the invention across the whole scope of the claim does not mean, in this case, that it would be necessary for every arbitrary combination of parameters selected within the scope of claim 6 to inevitably lead to the claimed foil. Moreover, the question of whether claim 6 contains all the essential features for obtaining the desired foil concerns clarity rather than sufficiency.

6.3 Opponent 2 argued that the invention was insufficiently disclosed because claim 1 was unclear, thereby relying on the same objections as raised under Article 84 EPC (point II of their statement of grounds of appeal). However, it has not been substantiated how these alleged clarity issues result in lack of sufficiency of disclosure, and nor is this apparent. Said objections do not therefore alter the considerations of the board set out above.

6.4 Opponent 4 argued that the skilled person would be unable to determine the average crystal grain size because the measuring method indicated in the patent in suit (JIS H0501) related to copper alloys.

Irrespective of whether this objection should be considered, because it has apparently not been raised at the opposition stage, it is not convincing. The patent in suit does not only refer to JIS H0501 but additionally explains how the measurement is to be done (paragraph [0079]). It is not apparent that the skilled person would be unable to carry out average crystal grain size measurements. The question of whether the values described in the patent can be identically reproduced, i.e. whether all methods lead to the same result, is a question of clarity (Article 84 EPC) rather than sufficiency of disclosure, in particular as in this case it only concerns the border of the claim.

6.5 In conclusion, the objections of lack of sufficiency of disclosure are not convincing.

7. Objection under Article 53(a) EPC

7.1 According to opponent 2, the claimed invention should be excepted from patentability pursuant to Article 53(a) EPC. In their opinion, the generally known alloy 8021 would be prohibited by the patent in suit, which was contrary to "ordre public" or morality.

7.2 The precise nature of this objection, and thus whether it even constitutes a fresh ground for opposition - which may only be considered with the approval of the patent proprietor (G 10/91) - is unclear, because it is substantiated by considerations which apparently concern novelty. In any case, this objection was raised for the first time in opponent 2's statement of grounds of appeal, and there was no justification for submitting it only at the appeal stage. This objection cannot be taken into account (Article 12(4) and (6) RPBA 2020).

8. Novelty - Document D3

8.1 According to the impugned decision, the subject-matter of claim 1 differed from comparative example 25 of D3 because D3 did not disclose the number of intermetallic compounds.

8.2 The alloy composition of comparative example 25, including the impurity contents (see Table 1), as well as its average tensile strength and average crystal grain size (Table 2) fall within the scope of claim 1. The foil has a thickness of 35 μm (Table 1).

8.3 It is undisputed that D3 does not explicitly mention the number of intermetallic compounds. However, the

opponents are of the opinion that this feature was inherent, having regard to the similarity of the manufacturing method. It is also debated whether the manufacturing method of D3 differs from the one according to claim 6 merely in view of the cold-rolling reduction rate or additionally in view of the homogeneous retention conditions.

- 8.4 The conditions of the homogeneous retention step are taught as affecting the number and size of the intermetallic compounds (paragraph [0049] of the patent in suit). The manufacturing method used in comparative example 25 of D3 involves an annealing step (homogeneous retention) for 3 hours at 560°C (Table 3). This is outside of the claimed range of 550°C or lower. It is not a decisive factor that the alloy of D3 is subsequently cooled to a lower temperature, so that it is additionally exposed to a temperature of between 400°C and 550°C during cooling. In particular, there is no proof that this subsequent cooling step, independently of the preceding annealing step, would be decisive for the number of intermetallic compounds. In addition, the cold-rolling reduction rate in D3 is lower than that stipulated in claim 6. It is not apparent that comparative example 25 of D3 could be directly compared with one of the examples in the patent in suit either. Furthermore, while comparative example 31 of the patent in suit is an example in which no intermediate annealing was performed, it nevertheless shows that it is possible for the average crystal grain size to be within the claimed range while the number of intermetallic compounds is not.

In the light of the above, it cannot be concluded that example 25 inherently has a number of intermetallic compounds within the claimed range.

Example 9 of D3 is less relevant because the average tensile strength is less than the claimed range.

8.5 The objection of lack of novelty in view of D3 is therefore not convincing.

9. Novelty - Document D8

9.1 According to the impugned decision, it was not directly and unambiguously derivable from D8 that the number of intermetallic compounds having a circle equivalent diameter of 1.0 to 5.0 μm was within the claimed range, with D8 only indicating the number of intermetallic compounds having a diameter of 0.2 μm or more.

9.2 Opponent 2 maintained their objection of lack of novelty (page 7 of the statement of grounds of appeal), but they merely referred to their arguments starting on page 3 of their notice of opposition and to the impugned decision. This reference to the submissions made during the opposition proceedings does not constitute - as it should - a substantiated submission as to why the opposition division's finding was wrong. It thus does not comply with the requirements of Article 12(3) RPBA and is not admitted, pursuant to Article 12(5) RPBA.

10. Novelty - Prior use "Hydro/Amtcor"

10.1 Reference is made to the comments regarding the main request (point 2.).

10.2 The tensile strength is only known for a single direction and is less than 100 MPa - see D34-D37.

No different conclusion is reached when additionally consulting D68, notwithstanding the question of its admissibility into the proceedings. D68 merely indicates a range of the tensile strength of foils for various alloy types, including 8021, and various thicknesses. It discloses a range of 75 to 110 MPa for a 40-90 µm foil of this alloy composition in temper O (Table 1). The values reported in D34-D37 are within this range, meaning that they are consistent with D68. D68 does not disclose the tensile strength values in different directions relative to the rolling direction either but, instead, only indicates a single value. D68 thus provides no basis for complementing the tensile strength values in 45° and 90° relative to the rolling direction. In any case, when assessing novelty and establishing the direct and unambiguous disclosure of the prior use "Hydro/Amcors", it is not permissible to modify its disclosure in the light of another document.

10.3 The prior use "Hydro/Amcors" does not take away the novelty of claim 1, which is in line with the impugned decision.

11. Novelty - Prior use "AMAG/Constantia Teich"

11.2 The patent proprietor contested the opposition division's finding that this prior use, in so far as it concerned BNr. 57920, formed part of the state of the art.

11.3 As indicated with reference to T 42/19 (see point 2.3 above), a board of appeal should overrule a department

of first instance's evaluation of evidence and replace it with its own only in certain circumstances.

11.4 As outlined below, the patent proprietor's arguments do not demonstrate any deficiencies in the opposition division's evaluation that would justify overruling it, and nor are any apparent to the board.

11.4.1 Specifically, the patent proprietor suggested that the affidavits (D21, D22, D23) may have been "prefabricated" and "blindly signed" by the witnesses, without the latter actually having the annexes, which may have been added later.

However, the opposition division, in its decision (starting on page 46 of the impugned decision), did not only rely on the affidavits as such but assessed the testimony and what the witnesses Mr Santora, Mr Steckenbauer and Mr Doberer could recall from their own memories and whether the authenticity of the documents annexed to the affidavits was proven. The patent proprietor does not seem to question Mr Doberer's ability to testify from his personal knowledge that the documents were retrieved from Constantia Teich's internal documentation system, and it is not apparent why it would additionally have been necessary for him to have personal knowledge of the events/data reported in these documents.

11.4.2 The opposition division also explained in detail why it considered it proven that a sample of the foil produced by AMAG from pre-rolled strip BNr. 57920 was returned to AMAG for test and reference purposes, on the basis of the testimonials of Mr Steckenbauer and Mr Santora as well as internal test report D21c. The opposition division considered that the witness Mr Santora, who

had been involved in locating and retrieving the sample, expressly confirmed that this roll had been stored in the archive with a clear indication of what it was and that it was not to be destroyed.

The patent proprietor only presents general comments concerning why, in their opinion, doubts remained, but they did not demonstrate any factual error in the opposition division's reasoning.

- 11.4.3 Furthermore, the delivery of the final foil to end customers Danone and Zott by Constantia Teich was shown in D23b. Mr Steckenbauer's testimony (Mr Steckenbauer being a former employee of AMAG) regarding his presentation D21d (by AMAG) and D21d are irrelevant in this regard, contrary to the patent proprietor's assertion.
- 11.5 There is consequently no reason for the board to deviate from the opposition division's conclusion that an aluminium foil based on the pre-rolled strip with the article No. 345413 and the BNr. 57920, with the properties, composition and features derivable from D21a, D21b, D21c, D23a and D23b, was part of the state of the art.
- 11.6 There is consequently no need to consider opponent 4's request for inspection (point 1.8 of opponent 4's statement of grounds of appeal) in relation to this prior use.
- 11.7 As derives from D21c, the tensile strength measurement is only available for a single direction and is 108 or 109 MPa (Table 1). This indication does not amount to a direct and unambiguous disclosure of the average value measured at 0°, 45° and 90° relative to the rolling

direction being 100 MPa or higher, which is in line with the difference identified by the opposition division when assessing inventive step (point 4.5.2.1 of the impugned decision). Opponent 2's subsequent measurements (D73) do not lead to any different conclusion because an average value of 97.9 MPa - less than 100 MPa - was determined, irrespective of the question of whether these measurements should be taken into consideration.

Opponent 2's assertion that the reported standard deviation had to be applied to the calculated average value does not change this view. While applying the standard deviation results in a range around the average value, this does not amount to a direct and unambiguous disclosure of any specific sub-range thereof, let alone a sub-range or a value of 100 MPa or more. Opponent 2's arguments that the measurements reported in their submission of 22 July 2022 (i.e. in D73) were not representative of the fresh sample, but were too low due to ageing, do not change this view either, because the allegedly correct value of the fresh sample remains unknown. Furthermore, any deterioration by ageing would speak against using the sample as a reference, which was, however, the purpose for storing the sample (e.g. page 49 of the impugned decision, first paragraph).

- 11.8 The prior use "AMAG/Constantia Teich", BNr. 57920 thus does not take away the novelty of claim 1, irrespective of the patent proprietor's objection that it had not been formally cited against the novelty of claim 1 at the opposition stage.

12. Prior use "AMAG/Constantia Teich", BNr. 57145
 - 12.1 Opponent 2 additionally relies on the prior use of this BNr. 57145, which allegedly had the same properties as BNr. 57920. The opposition division found that this alleged prior use was insufficiently proven. The board sees no error in this reasoning. There is no basis to assume that the properties reported in D21a and D21c, relating to BNr. 57920, identically apply to BNr. 57145.

13. Novelty - Prior use "Carcano Antonio/Constantia Patz"
 - 13.1 The tensile strength values of the relevant foil codes 1012/1 Rif. 1630 and 138/1 Rif. 323 are less than the claimed range (namely 95.58 MPa and 91.64 MPa, respectively) and relate to a single direction only. In addition, this prior use relates to foils having a low copper content of 0.0020, below the minimum amount of 0.0025 stipulated in claim 1. It is irrelevant to the question of novelty whether this very small difference may be associated with a difference in the properties of the foil. Similarly, the number of intermetallic compounds having a circle equivalent diameter of 1.0-5.0 μm is not expressly indicated. The numbers in D13 (Figure 5, Table 2) relate to an equivalent diameter of min. 0.1 μm , mean 0.6 μm and max. 3.4 μm in the case of Sample 1 (foil 1012/1 Rif. 1630), see Table 3. On this basis, it cannot be concluded that the number of intermetallic compounds having a circle equivalent diameter of 1.0-5.0 μm would inevitably fall within the claimed range. Again, the question of any technical effect is irrelevant to the assessment of novelty.

13.2 For these reasons, the prior use "Carcano Antonio/ Constantia Patz" does not take away the novelty of claim 1, irrespective of the patent proprietor's objections that it did not form part of the state of the art or that it should be disregarded.

14. Prior use "Hydro/Hueck"

14.1 According to the impugned decision, this prior use, evidenced by D24-D30, D27a and by (the offer of) witnesses, did not form part of the state of the art.

The opposition division did not hear the witnesses Mr Weist and Mr Schubert because the fact that the meeting according to D24-D26 had taken place had not been disputed by the patent proprietor and was not doubted by the opposition division (point 2.4.2 of the impugned decision).

The opposition division heard the witnesses Ms Kuhnke and Mr Hasenclever.

14.2 Opponent 3 criticised that the opposition division took this decision - that the alleged prior use did not form part of the state of the art - without hearing the witnesses Mr Weist and Mr Schubert, because the witnesses had not only been offered to confirm that the meeting to which D24 relates took place, but also to testify as to the participants and the contents of the meeting (opponent 3's notice of opposition, page 10, as reproduced in opponent 3's statement of grounds of appeal, page 7). This included the delivery. Opponent 3 also criticised the fact that the witness Mr Hasenclever was heard on the contents of D24 instead of

the witnesses that had been offered in relation to it. In their opinion, not hearing the witnesses Mr Weist and Mr Schubert affected the outcome of the decision.

- 14.3 The patent proprietor was of the view that the opposition division's decision not to hear the witnesses Mr Weist and Mr Schubert was correct. Opponent 3 had not sufficiently indicated what and how the witnesses could have testified in relation to the alleged delivery. The witnesses had only been offered to testify as to the "contents of the meeting", which could only mean the mere fact that the presentation D24 was actually shown during the meeting. Moreover, opponent 3 was aware of the patent proprietor's objection - already set out in the reply to the notices of opposition - that the alleged delivery of the foils "709 437-01" to Hueck had not been appropriately evidenced, but they had failed to react accordingly. The opposition division had also stated in its preliminary opinion that the written evidence was insufficient. Opponent 3 thus had not had any reason to believe that the opposition division considered the alleged delivery proven. Nevertheless, they never contested the opposition division's decision not to hear the witnesses, neither in writing nor during the oral proceedings before the opposition division. It was thus not justified to remit the case to the opposition division to hear the witnesses.

The patent proprietor also asserted that there were inconsistencies in the documents cited in support of the alleged prior use. The alleged delivery therefore did not concern those foils for which test results were provided.

14.4 However, the opposition division did not base its decision on any alleged inconsistencies in the documents filed in support of the alleged prior use. As this aspect - for which the testimonies of the witnesses who were heard may be relevant - was not dealt with in the impugned decision, there is no basis for the board to review it.

The opposition division found that the presentation D24 and the general statements by the witness Mr Hasenclever did not prove beyond reasonable doubt the actual delivery of the foils to Hueck, and that considerable doubts remained as to the public nature of the delivery, if any (point 2.4.2 of the impugned decision). The opposition division was of the opinion that the alleged deliveries in the presentation D24, page 11, could be considered to be more likely than unlikely, but it concluded on the basis of D24 and Mr Hasenclever's testimonial (who, however, did not participate in the relevant meeting) that "*absent any indications to the contrary*" there were doubts as to the public nature of the alleged sales in view of the applicable standard of proof, beyond reasonable doubt (ibid.).

Indeed, the witnesses Mr Weist and Mr Schubert had been offered to testify as to the content of the meeting, which included the delivery of the foil because this meeting (in the form of the internal presentation D24) was provided as the (only) evidence of the delivery (opponent 3's notice of opposition, page 10, second and fifth paragraphs).

In the light of the above, it is not possible to exclude the possibility that the opposition division might have come to a different conclusion if it had

heard the witnesses Mr Weist and Mr Schubert on the content of this meeting.

- 14.5 It is correct that opponent 3 did not contest the opposition division's conclusion that it was not necessary to hear the witnesses Mr Weist and Mr Schubert. However, this conclusion, which was based on the finding that the meeting between Hueck and Hydro and the authenticity of the presentation D24 were not disputed, seen together with the fact that the opposition division did invite the other witnesses Ms Kuhnke and Mr Hasenclever (opposition division's communication dated 4 December 2019, page 22, third paragraph), who were offered to testify on the properties of the aluminium foils, may have conveyed the impression that the alleged delivery was not in dispute.
- 14.6 Furthermore, the alleged prior use with order number 709.437-01 seems to be highly relevant because it allegedly relates to a foil having a relevant chemical composition (D27), an average crystal grain size of 3.2 or 2.7 μm , respectively (D28, page 7), a number of intermetallic compounds having a circle equivalent diameter of 1.0 to 5.0 μm of 1.5×10^4 and 1.6×10^4 grains/ mm^2 , respectively (D30), and a tensile strength of 111 MPa in the rolling direction and 104 MPa in 90° relative to the rolling direction (D29). According to opponent 3's arguments, this allegedly implies that the average tensile strength of the three directions (0° , 45° and 90°) is within the claimed range because, otherwise, the tensile strength measured in 45° would need to be less than 85 MPa, which in their opinion was physically excluded.

In particular, it may be more relevant than the other prior art under consideration, and - if proven - may thus be decisive for the outcome of the case.

14.7 For these reasons, it appears equitable that the witnesses Mr Weist and Mr Schubert should be heard before deciding on the public availability of the prior use "Hydro/Hueck".

15. Remittal

15.1 In light of the above (see point 14.7), it is justified to remit the case to the opposition division for further prosecution (Article 11 RPBA 2020)

16. Alleged procedural violation

16.1 Opponent 3 alleges that their right to be heard had been violated by the opposition division not hearing the witnesses Mr Weist and Mr Schubert. In support of this view, they cited T 716/06.

16.2 Indeed, the opposition division seems to have misinterpreted the intended scope of the testimony by stating in the impugned decision that the witnesses Mr Weist and Mr Schubert were offered to provide evidence that the meeting according to D24-D26 took place. However, this is merely an error of judgement, considering that opponent 3's indications in the notice of opposition in this respect were quite vague (testimony for "the contents of the meeting", as indicated). It does not amount to a procedural violation. This is all the more the case as opponent 3 did not renew the offer of the witnesses during the

oral proceedings before the opposition division when questions regarding the delivery were addressed (minutes of the oral proceedings, page 5).

Furthermore, it is not objectionable that Mr Hasenclever was heard on the alleged delivery, considering that he was offered to testify, *inter alia*, that the samples (Rückstellmuster) tested belonged to the delivery with order number 709.437-01 (opponent 3's notice of opposition, page 10, seventh and eighth paragraphs).

16.3 This case is not comparable with the case law cited by opponent 3, in particular T 716/06. The latter related to a case in which the opposition division, in a decision issued without oral proceedings, disregarded oral evidence offered on two specific issues. By contrast, in the present case the opposition division has diligently examined a number of allegations of prior use and heard ten witnesses.

16.4 The board therefore sees no indication of any negligence, let alone a procedural violation, by the opposition division.

17. Other allegations of a procedural violation

17.1 Opponent 2 alleges that their right to be heard had been violated because the opposition division, when carrying out the problem-solution approach, did not address the question of whether the proposed solution would have been obvious for the skilled person faced with the objective technical problem posed (point V of opponent 2's statement of grounds of appeal).

The board disagrees and points out that the opposition division addressed this question not only in point 4.5.2.3 of the impugned decision, contrary to opponent 2's assertion, but provided additional reasoning in points 4.5.2.4 to 4.5.2.5.

- 17.2 Opponent 2 furthermore sees a procedural violation in the fact that the opposition division allegedly refused to consider D68 (opponent 2's submission dated 30 January 2023, page 6, fourth paragraph).

However, D68 was filed by opponent 3 on the second (i.e. last) day of the oral proceedings before the opposition division. Pursuant to Rule 116(1) EPC and Article 114(2) EPC, the opposition division had discretion to disregard the document, and in particular opponent 3's objection of lack of inventive step based on this document as secondary prior art (point 1.5 of the impugned decision).

Opponent 2 did not even substantiate any error in the opposition division's exercise of its discretion, but generally objects to its alleged refusal to consider the document ("Weigerung, dass Beweismittel zu würdigen").

Considering that the opposition division did have discretion, as indicated, and that the question of the admission of D68 was discussed during the oral proceedings before the opposition division (page 9 of the minutes of the oral proceedings: resumption on the second day), opponent 2's objection is unfounded.

- 17.3 It appears that opponent 2 also objects to D72 not having been considered (opponent 2's letter dated 30 January 2023, page 7, penultimate paragraph).

However, this document was only filed with opponent 2's submission of 21 July 2022, during the appeal proceedings.

Furthermore, the patent proprietor's observation is correct that the relevance of this document - in Japanese language - cannot be understood, because no translation into an official language of the EPO has been provided. It is not apparent to the board how this observation could possibly relate to the question of the (un)availability of a translation of the priority document of the patent in suit, as alleged by opponent 2 (ibid.).

17.4 In summary, the board sees no indication of a procedural violation.

18. Reimbursement of the appeal fee

18.1 There having been no substantial procedural violation, the appeal fee is not to be reimbursed pursuant to Rule 103(1)(a) EPC.

Order

For these reasons it is decided that:

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

The Registrar:

The Chairman:



C. Vodz

E. Bendl

Decision electronically authenticated