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Datasheet for the decision of 12 June 2020

Case Number:	T 0110/18 - 3.3.05
Application Number:	06782398.9
Publication Number:	1980638
IPC:	C22C38/00, C23C2/06, C22C38/02, C22C38/04, C22C38/06, C21D9/46, C23C2/28, C23C2/02, C22C18/04, C22C18/00
Language of the proceedings:	EN

Title of invention:

HIGH-STRENGTH HOT-DIP ZINCED STEEL SHEET EXCELLENT IN MOLDABILITY AND SUITABILITY FOR PLATING, HIGH-STRENGTH ALLOYED HOT-DIP ZINCED STEEL SHEET, AND PROCESSES FOR PRODUCING THESE

Patent Proprietor:

Nippon Steel Corporation

Opponents:

ArcelorMittal France
Tata Steel Nederland Technology B.V.

Headword:

Zinced Steel sheet/Nippon Steel

Relevant legal provisions:
EPC R. 139, 103
EPC Art. 123(2), 83, 56

Keyword:
Correction of error - (no)
Amendments - added subject-matter (yes) - main request
Sufficiency of disclosure - auxiliary request (yes)
Inventive step - auxiliary request (yes)
Reimbursement of appeal fee - (yes) -25%

Decisions cited:
T 1852/11, T 1811/13, T 0265/14, T 1201/14, T 1525/17

Catchword:

Europäisches Patentamt
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Office européen des brevets

Beschwerdekammern

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Case Number: T 0110/18 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 12 June 2020

Appellant: (Opponent 1)	ArcelorMittal France Immeuble "Le Cézanne" 6, rue André Campra 93200 Saint-Denis (FR)
Representative:	Lavoix 2, place d'Estienne d'Orves 75441 Paris Cedex 09 (FR)
Respondent: (Patent Proprietor)	Nippon Steel Corporation 6-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo (JP)
Representative:	Vossius & Partner Patentanwälte Rechtsanwälte mbB Siebertstrasse 3 81675 München (DE)
Party as of right: (Opponent 2)	Tata Steel Nederland Technology B.V. P.O. Box 10000 1970 CA Ijmuiden (NL)
Representative:	Group Intellectual Property Services c/o Tata Steel Nederland Technology B.V. P.O. Box 10000 - 3G.37 1970 CA IJmuiden (NL)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 13 November 2017 concerning maintenance of the European Patent No. 1980638 in amended form.**

Composition of the Board:

Chairman	E. Bendl
Members:	G. Glod
	R. Winkelhofer

Summary of Facts and Submissions

I. The appeal lodged by opponent 1 (the appellant) lies from the opposition division's decision finding that the amended European patent EP-B-1 980 638 met the requirements of the EPC.

The following documents cited in the impugned decision are of relevance here:

D1: JP 2005/060742 A
D2: US 2001/0031377 A1
D3: EP 1 612 288 A1
D4: The role of aluminium in continuous hot-dip galvanizing, GalvInfoNote 10, August 2003
D5: WO 2004/087983 A1
D7: JP 2001/323355 A
D8: JP 09 310163 A
D9: US 2002/0160221 A1
D16: L. Bordignon et al.; 5th International Conference on Zinc and Zinc Alloy Coated Steel Sheet, Galvatech 2001, pages 573-580
D17: A. R. Marder, Progress in Materials Science 45, 2000, pages 191-271
D18: First declaration of the technical expert J.-M. Mataigne
D19: Second declaration of the technical expert J.-M. Mataigne

II. The claim request held allowable by the opposition division corresponds to the patent as granted but with claim 16 deleted.

The independent claims of this request, which are also relevant to the present decision read as follows:

"*1. Hot dip galvanized steel sheet excellent in shapeability and plateability comprised of high strength steel sheet containing, by mass %,*
C: 0.05 to 0.25%,
Si: 0.3 to 2.5%,
Mn: 1.5 to 2.8%,
P: 0.03% or lower,
S: 0.02% or lower,
Al: 0.005 to 0.5%,
N: 0.0060% or lower and
the balance of Fe and unavoidable impurities, on which having a galvanized layer containing Al: 0.05 to 10 mass% and Fe: 0.05 to 3 mass% and the balance of Zn and unavoidable impurities, said hot dip galvanized steel sheet characterized by the presence of oxides containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains at the steel sheet side 5 μm or less from the interface between the high strength steel sheet and the plating layer, wherein said oxides containing Si being at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$, and Mn_2SiO_4 are present at the steel sheet surface or surface side and SiO_2 are present at the inside surface side of the steel sheet, and by the presence of Fe-Zn alloy with an average grain size of 0.5 to 3 μm at the plating side."

"*2. Hot dip galvanized steel sheet excellent in shapeability and plateability comprised of high strength steel sheet containing, by mass%,*
C: 0.05 to 0.25%,
Si: 0.3 to 2.5%,
Mn: 1.5 to 2.8%,
P: 0.03% or lower,
S: 0.02% or lower,

Al: 0.005 to 0.5%,
N: 0.0060% or lower and
the balance of Fe and unavoidable impurities, on which having a galvanized layer containing Al: 0.05 to 10 mass% and Fe: 0.05 to 3 mass% and the balance of Zn and unavoidable impurities, said hot dip galvanized steel sheet characterized by the presence of oxides containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains at the steel sheet side 5 μm or less from the interface between the high strength steel sheet and the plating layer, wherein said oxides containing Si being at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$, and Mn_2SiO_4 are present at the steel sheet surface or surface side and SiO_2 are present at the inside surface side of the steel sheet, and by the presence of Fe-Zn alloy with an average grain size of 0.5 to 3 μm at the plating side in a ratio of 1 grain/ 500 μm^2 or more."

"*3. Hot dip galvanized steel sheet excellent in shapeability and plateability comprised of high strength steel sheet containing, by mass%,*

C: 0.05 to 0.25%,
Si: 0.3 to 2.5%,
Mn: 1.5 to 2.8%,
P: 0.03% or lower,
S: 0.02% or lower,
Al: 0.005 to 0.5%,
N: 0.0060% or lower and
the balance of Fe and unavoidable impurities, on which having a galvanized layer containing Al: 0.05 to 10 mass% and Mg: 0.01 to 5 mass% and the balance of Zn and unavoidable impurities, said hot dip galvanized steel sheet characterized by the presence of oxides

containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains at the steel sheet side 5 μm or less from the interface between the high strength steel sheet and the plating layer, wherein said oxides containing Si being at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$, and Mn_2SiO_4 are present at the steel sheet surface or surface side and SiO_2 are present at the inside surface side of the steel sheet."

"*4. Hot dip galvanized steel sheet excellent in shapeability and plateability comprised of high strength steel sheet containing, by mass%,*
C: 0.05 to 0.25%,
Si: 0.3 to 2.5%,
Mn: 1.5 to 2.8%,
P: 0.03% or lower,
S: 0.02% or lower,
Al: 0.005 to 0.5%,
N: 0.0060% or lower and
the balance of Fe and unavoidable impurities, on which having a galvanized layer containing Al: 4 to 20 mass%, Mg: 2 to 5 mass%, and Si: 0 to 0.5 mass% and the balance of Zn and unavoidable impurities, said hot dip galvanized steel sheet characterized by the presence of oxides containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains at the steel sheet side 5 μm or less from the interface between the high strength steel sheet and the plating layer, wherein said oxides containing Si being at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$, and Mn_2SiO_4 are present at the steel sheet surface or surface side and SiO_2 are present at the inside surface side of the steel sheet."

"*5. Galvannealed steel sheet excellent in shapeability and plateability comprised of high strength steel sheet containing, by mass%,*
C: 0.05 to 0.25%,
Si: 0.3 to 2.5%,
Mn: 1.5 to 2.8%,
P: 0.03% or lower,
S: 0.02% or lower,
Al: 0.005 to 0.5%,
N: 0.0060% or lower and
the balance of Fe and unavoidable impurities, on which having a zinc alloy plating layer containing Fe and the balance of Zn and unavoidable impurities, said steel sheet characterized by the presence of oxides containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains at the steel sheet side 5 μm or less from the interface between the high strength steel sheet and the plating layer and by the presence of oxides containing Si in an average content of 0.5 to 1.5 mass% in the plating layer, wherein said oxides containing Si being at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$, and Mn_2SiO_4 are present in the plating layer and at the steel sheet surface and SiO_2 are present at the inside surface side of the steel sheet."

"*6. Galvannealed steel sheet excellent in shapeability and plateability comprised of high strength steel sheet containing, by mass%,*
C: 0.05 to 0.25%,
Si: 0.3 to 2.5%,
Mn: 1.5 to 2.8%,
P: 0.03% or lower,
S: 0.02% or lower,
Al: 0.005 to 0.5%,
N: 0.0060% or lower and

the balance of Fe and unavoidable impurities, on which having a zinc alloy plating layer containing Fe and the balance of Zn and unavoidable impurities, said steel sheet characterized by the presence of oxides containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains at the steel sheet side 5 µm or less from the interface between the high strength steel sheet and the plating layer and by the presence of oxides containing Si in an average content of 0.5 to 1.5 mass% in the plating layer, wherein said oxides containing Si being at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$, and Mn_2SiO_4 are present in the plating layer and SiO_2 are present at the steel sheet side of the plating layer and in the steel sheet."

III. With the statement of grounds of appeal, the appellant filed the new document:

D20: Galvanneal - Differences from Galvanize, April 2014

IV. In response to the respondent's (patent proprietor's) reply to the appeal, in which the set of claims upheld by the opposition division had been maintained as the main request, the appellant submitted D1'' and D7'', which are translations of D1 and D7, respectively, and:

D21: JIS H 0401:1999

V. In its communication pursuant to Article 15(1) RPBA 2007 of 17 December 2019, the board expressed the preliminary opinion that claim 2 of this main request did not meet the requirements of Article 123(2) EPC, while the requirements of Article 100(a) and 100(b) EPC appeared to be met.

VI. The respondent filed an auxiliary request on 9 March 2020. The auxiliary request is identical to the main request but with claim 2 deleted and the other claims adapted accordingly.

VII. In a further communication pursuant to Article 15(1) RPBA 2020 issued on 4 May 2020, after the oral proceedings scheduled for 24 April 2020 had been cancelled due to the COVID-19 outbreak, the board indicated that the auxiliary request appeared allowable.

VIII. In response, the appellant and the respondent both withdrew their requests for oral proceedings on 27 May 2020 and 9 June 2020, respectively, provided the board maintained its position set out in the communication of 4 May 2020.

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

D17 to D21 should be considered in the appeal proceedings. D17 to D19 were *prima facie* relevant to the conclusion that the subject-matter of claims 1 and 2 lacked an inventive step in view of D2 in combination with D16. D20 and D21 were of relevance for the sufficiency of disclosure.

With regard to claim 2 of the main request, the requirements of Article 123(2) EPC were not fulfilled since it was not obvious that the expression 1 grain/ 500 µm on page 20 (lines 10 and 11) was erroneous.

The invention was not sufficiently disclosed. The amount of silicon oxides in the specific layers could

not be determined since the method was not sufficiently described. Furthermore the amount was dependent on the width of the analysed layer. The interface itself could have a width of several µm. It was not clear whether SiO_2 had to be taken into consideration when determining the content of oxides containing Si. The skilled person had to do a research programme when trying to execute the invention.

The claims did not require SiO_2 to be absent from the layers where the other silicon oxides were present or require the other silicon oxides to be absent where SiO_2 was present.

D2 and D3 were possible starting points for the question of the inventive step of claim 1 of the main request (i.e. claim 1 of the auxiliary request). The subject-matter of claim 1 differed from D2 only on account of the presence of Fe-Zn alloy with an average grain size of 0.5 to 3 µm at the plating side. This feature was obvious in view of either D4 or D16. The subject-matter of claim 1 differed from D3 only on account of the presence of oxides containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains and on account of the presence of Fe-Zn alloy with an average grain size of 0.5 to 3 µm at the plating side. In particular, D3 disclosed the features relating to the location of the silicon oxides. The distinguishing features were obvious in view of D7 combined with D4.

D2 was another possible starting point for claims 3 and 4 of the main request (i.e. claims 2 and 3 of the auxiliary request). The subject-matter of claims 3 and 4 differed from D2 only on account of the presence of ZnAlMg and ZnAlMgSi, respectively, as coatings. These

features were obvious in view of D8 possibly combined with D10, or in view of D7. The subject-matter of claims 3 and 4 was also obvious in view of D3 in combination with D7.

The subject-matter of claim 5 of the main request (i.e. claim 4 of the auxiliary request) lacked an inventive step in view of D2 or D3 in combination with D7, or in view of D1 in combination with D9 or D5. The subject-matter of claim 6 of the main request (i.e. claim 5 of the auxiliary request) was also obvious in view of D2 or D3 in combination with D7, or in view of D1 in combination with D9.

The auxiliary request should not be admitted into the proceedings. It was provided without justification very late in the proceedings despite the underlying objection having been present since the beginning of the opposition proceedings.

X. The respondent's arguments relevant to the present decision can be summarised as follows, and are further reflected in the reasons for the decision:

It was obvious that the reference to 1 grain/500 µm in claim 2 of the main request was erroneous since the unit of a number of grains per length was usually not used as a unit of the presence of grains in a steel product.

Both requests met the requirements of Article 123(2) and 56 EPC.

XI. Opponent 2 did not provide any submissions except for indicating that they would not attend the oral proceedings.

XII. The appellant requests that the impugned decision be set aside and that the patent be revoked.

The respondent requests that the appeal be dismissed or alternatively that the patent be maintained in amended form on the basis of the auxiliary request submitted on 9 March 2020.

Reasons for the Decision

Main request

1. Article 100(c) EPC.

The requirements of Article 123(2) EPC are not met for the following reasons:

The unit 1 grain/500 μm^2 in claim 2 is not directly and unambiguously derivable from the application as filed. This unit is based on the correction of an alleged error, under Rule 139 EPC, on page 20, line 11 of the application as filed. However, for such a correction to be allowable it first had to be established whether it was obvious that an error was in fact present (Case Law of the Boards of Appeal of the EPO, 9th edition, 2019, II.E.4.2.). Although it would seem more likely that the grains are counted over a surface given that the cross-section is mentioned, the possibility that the amount of grains is only determined over a certain length cannot be excluded. An obvious error is thus not immediately recognisable.

Auxiliary request

2. Article 13(1) RPBA 2020

Article 13(1) RPBA 2020 applies (see Article 25(3) RPBA 2020). The request was not submitted until 9 March 2020 despite the objection under Article 123(2) EPC having been present since the beginning of the opposition proceedings.

The request can still be admitted since the amendment is easy to understand (deletion of a claim as compared with the patent as granted with renumbering and adaptation of the other claims), is in line with procedural economy, does not give rise to new issues and leads to an allowable set of claims, as was already pointed out in the board's preliminary opinion.

3. Article 12(4) RPBA 2007: Admission/consideration of D16 to D21

D16 was admitted into the opposition proceedings since the opposition division was of the opinion that D16 was *prima facie* relevant (reasons 4). The EPC does not provide any legal basis for excluding, in appeal proceedings, documents which were already correctly admitted into the first-instance proceedings (T 1852/11, reasons 1.3; T 1201/14, reasons 2; T 1525/17 reasons 4.3).

D16' and D17 to D19 were not admitted (see minutes of the oral proceedings before the opposition division, point 6.4). Although there is no reasoning provided in the decision, it is evident that the opposition division did not consider these documents to be *prima facie* relevant, as mentioned in the minutes. The board

sees no reason to take a different stance since D16' does not *prima facie* provide additional information as compared with D16, which itself does not prejudice the maintenance of the patent. D17 to D19 all concern an Fe-Zn alloy, which is not the critical feature regarding inventive step.

D20 was published in 2014 and is not prior art, while D21 is irrelevant for the question of sufficiency of disclosure since it does not cast doubt on the teaching of the patent.

Therefore, the board sees no reason to admit D16' or D17 to D21 into the proceedings.

4. Article 100(b) EPC

There is no reason to deviate from the impugned decision, which is also correct in this regard.

The appellant's main objection is based on the allegation that it was impossible to determine whether oxides containing Si in an average content of 0.6 to 10 mass% at the crystal grain boundaries and in the crystal grains at the sheet steel side 5 µm or less from the interface between the high-strength steel sheet and the plating layer were present.

Thus, the objection relates to the ambiguity of the claims. It is established case law (T 1811/13, reasons 5.1) that to establish a lack of sufficiency it is not sufficient to establish that the claims lack clarity, but rather it is necessary to show that the lack of clarity affects the patent as a whole.

This is not the case here, for the following reasons:

It is evident from paragraph [0065] of the patent specification that the layer containing the oxides containing Si is dissolved by an acid, the oxides containing Si are separated and then the weight is measured. This weight includes Si originating from SiO_2. This is also in line with the method used in the examples and described in paragraph [0143], in which additionally an (undefined) inhibitor is used. There is no evidence that the results are completely divergent depending on the method used. Even if this were the case, the claims could still be construed to encompass any steel sheet having the required amount of Si (as determined by any type of method) and the additional features. As such it is evident that the ambiguity is more about clarity as to the scope of the claims under Article 84 EPC than the carrying out of the invention.

The thickness of the steel layer containing the oxides is determined and the average content of Si is calculated on the basis of that thickness, which can be a maximum of 5 µm. This is evident from the tables in the patent (thickness of Si internal oxide layer of steel sheet) and paragraphs [0138] and [0144].

It may be that the interface is not precisely defined - for which there is no real proof either - but the skilled person would be able to estimate the thickness of the internal oxide layer with sufficient accuracy using an SEM image, as is shown in the figures.

In view of the numerous examples provided in the patent and the lack of proof that they cannot be reworked, there is no reason to doubt that the requirements of Article 83 EPC are met.

5. Article 100(a) EPC together with Article 54 EPC

The appellant has not contested novelty. The board sees no reason to take a different stance.

6. Article 100(a) EPC together with Article 56 EPC

The appellant has not contested the inventive step of claims 7 to 14, so only claims 1 to 6 are under debate. The requirements of Article 56 EPC are met for claims 1 to 6, for the following reasons:

6.1 Claim 1

6.1.1 The invention relates to a high-strength hot-dip galvanized steel sheet.

6.1.2 D3 can be considered the closest prior art since it relates to a high-strength molten zinc-plated steel sheet of similar composition (paragraph [0012]) to that in claim 1 of the patent. It provides good press formability, strength and plating bonding free from plating defects such as plating gaps (paragraph [0014]). Inside, within 2 µm (see also Fig. 1) from the interface of the plating layer and steel sheet, the steel sheet contains oxide particles comprised of at least one type of oxide out of Al oxide, Si oxide, Mn oxide, or a complex oxide comprised of at least two of Al, Si and Mn alone or in combination. The oxide particles are silicon oxide, manganese oxide, manganese silicate, aluminium oxide, aluminium silicate, manganese aluminium oxide and manganese aluminium silicate (paragraphs [0031] and [0032]). The presence of some of these oxides is also reflected in the examples (Table 3). In particular, it cannot be derived from Fig. 1 of D3 that at least one type of Si oxides

selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 is present in the plating layer and/or at the steel sheet surface, which means that the requirement "present at the steel sheet surface or surface side" is not met in D3.

Although it also relates to hot-dip galvanized steel with high tensile strength, D2 has less features in common with claim 1 of the request under discussion than D3 since the content of P, S or Al does not seem to be disclosed (paragraph [0040]). Even if it were accepted that the average content of oxides containing Si was disclosed, D2 does not draw any distinction between the position of Mn_2SiO_4 and SiO_2 either, concentrating instead on the amount of Si and/or Mn present (see paragraph [0029]).

6.1.3 The problem to be solved by the patent in suit is to provide a high-strength hot-dip galvanized steel sheet that is good in appearance and excellent in plating adhesion, shapeability and corrosion resistance (paragraph [0021]).

6.1.4 The problem is solved by a hot-dip galvanized steel sheet according to claim 1, characterised in that the galvanized layer contains 0.05 to 3 mass% Fe, the oxides containing Si are present in an average content of 0.6 to 10 mass%, at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 is present in the plating layer and at the steel sheet surface, SiO_2 is present at the inside surface side of the steel sheet, and Fe-Zn alloy with an average grain size of 0.5 to 3 µm is present at the plating side.

6.1.5 As is evident from Tables 7 and 8, the posed problem is solved.

6.1.6 The prior art does not teach the importance of at least the position of $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 compared with SiO_2.

D4 does not relate to oxides containing silicon.

D7 discloses that the surface of no more than 3 µm contains 0.4 to 2.0 mass% silicon oxide (see paragraph [0020] of D7''). It does not disclose $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4.

D16 does not relate to the position of $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 compared with SiO_2.

6.1.7 Therefore, the subject-matter of claim 1 involves an inventive step.

6.2 Similar reasoning applies to claims 2 and 3 since they both include the feature relating to the position of the at least one type of Si oxides selected from $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 and the position of SiO_2.

6.3 Consequently, the subject-matter of claim 6, which depends on any one of claims 1 to 3, also involves an inventive step.

6.4 Claim 4

6.4.1 The invention relates to a high-strength galvannealed steel sheet.

6.4.2 Considering D2 and D3 as the possible closest prior art, as suggested by the appellant, the same argument applies as for claim 1 since the prior art does not

teach the position of $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 compared with SiO_2, which is also part of claim 4.

6.4.3 The appellant also suggested D1 as a possible starting point for inventive step, which relates to a high-strength hot-dip galvanized steel sheet having excellent adhesion (paragraph [0001] of D1''). Starting from the interface of the high-strength steel sheet and the plating layer, a steel layer of 0.1-10 µm having an average SiO_2 internal oxide content of 0.8 to 5.0 mass% is formed.

6.4.4 Since D1 does not disclose that at least one of $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 is present in the plating layer, the reasoning provided in points 6.1.3 to 6.1.5 above applies (see also Table 2 of the patent in suit).

6.4.5 D9 relates to a hot-dip galvanized steel sheet composed of a basis steel sheet containing Si in an amount of 0.05 to 2.5%, and Mn in an amount of 0.2 to 3%, by mass; an Fe-plated layer formed on the basis steel sheet; and a hot-dip galvanized zinc layer formed on the surface layer of the basis steel sheet via the Fe-plated layer, in which the oxides containing Si and/or Mn are discontinuously dispersed in the vicinity of the interface between the basis steel sheet and the Fe-plated layer. In the vicinity of the interface between the basis steel sheet surface and the Fe-plated layer, Si and Mn are positively formed into oxides. Consequently, even if Si and Mn partially diffuse upon annealing following Fe-plating, most of the Si and Mn cannot diffuse and concentrate onto the Fe-plated layer surface as atoms (paragraphs [0022] and [0023]). Consequently, D9 does not teach the presence of at

least one of $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 in the plating layer either.

6.4.6 D5 only discloses the presence of all types of silicon-containing oxides in the plating layer (see Fig. 1, paragraph [0029] and claim 1), but does not draw any distinction between $FeSiO_3$, Fe_2SiO_4, $MnSiO_3$ and Mn_2SiO_4 and SiO_2.

6.4.7 Consequently, the subject-matter of claim 4 also involves an inventive step.

6.5 Similar reasoning applies to claim 5.

7. Rule 103(4)(c) EPC

The appellant withdrew its request for oral proceedings within one month of notification of the second communication pursuant to Article 15(1) RPBA, which was exceptionally issued in view of the COVID-19 outbreak. The board follows the rationale of T 265/14 (of the same board in a different composition) and concludes that the requirements for a 25% reimbursement of the appeal fee according to Rule 103(4)(c) EPC are met. This is also in accordance with the explanations given in the explanatory document to the Rule 103 EPC change (see CA/80/19, point 82) since in the case in hand the oral proceedings cancelled due to the COVID-19 outbreak do not have to be rescheduled.

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 with the order to maintain the patent in amended form on the basis of the claims of the auxiliary request submitted on 9 March 2020, and a description to be adapted accordingly.

3. The appeal fee is reimbursed at 25%.

The Registrar: The Chairman:

A. Voyé E. Bendl

Decision electronically authenticated