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**Datasheet for the decision  
of 6 February 2020**

**Case Number:** T 0658/17 - 3.3.05

**Application Number:** 11814305.6

**Publication Number:** 2602342

**IPC:** C22C38/00, B23K15/00,  
B23K26/00, C21D8/12, C22C38/04,  
C22C38/60, H01F1/16

**Language of the proceedings:** EN

**Title of invention:**

GRAIN-ORIENTED MAGNETIC STEEL SHEET AND PROCESS FOR PRODUCING  
SAME

**Applicant:**

JFE Steel Corporation

**Headword:**

Method for manufacturing an electrical steel sheet/JFE

**Relevant legal provisions:**

EPC Art. 84, 123(2)

RPBA Art. 13, 13(1)

RPBA 2020 Art. 11, 12(2), 13(1), 25

**Keyword:**

Claims - clarity after amendment (yes)

Amendments - allowable (yes)

Late-filed auxiliary requests - amendments after arrangement  
of oral proceedings - justification for late filing (yes) -  
admitted (yes)

**Decisions cited:**

T 0731/17

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
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Case Number: T 0658/17 - 3.3.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.05**  
**of 6 February 2020**

**Appellant:** JFE Steel Corporation  
(Applicant) 2-3, Uchisaiwaicho 2-chome  
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**Representative:** Grünecker Patent- und Rechtsanwälte  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 7 November 2016  
refusing European patent application No.  
11814305.6 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** E. Bendl  
**Members:** T. Burkhardt  
S. Fernández de Córdoba

## **Summary of Facts and Submissions**

- I. The appeal lies from the examining division's decision to refuse the European patent application EP 11 814 305.6.
- II. The examining division had held that the then valid claims fulfilled the requirements of Article 123(2) EPC (point II.1 of the decision under appeal) but that features like the "total length of cracks in a forsterite film" measured by "backscattered electron imaging at an acceleration voltage of 15 kV", which appeared in the independent claims at that time, were unclear within the meaning of Article 84 EPC (points II.2 and III).
- III. The appellant (applicant) appealed against the examining division's decision and filed amended sets of claims, against which the board raised objections in its communication under Article 15(1) RPBA 2007.
- IV. During the oral proceedings, the appellant submitted a new request labelled as Auxiliary Request VI and withdrew all the other requests. The sole independent claim reads as follows (additions/deletions compared with the application as originally filed are highlighted by the board):

"1. A method for manufacturing a grain oriented electrical steel sheet, comprising:

**subjecting the grain oriented electrical steel sheet comprising 2.0 mass% to 8.0 mass% Si and having a forsterite film on a steel sheet surface to flattening**

**annealing at 800°C wherein an in-furnace tension during flattening annealing is 10 MPa or less,**

**and** ~~subjecting the~~ a grain oriented electrical steel sheet ~~having a total length of cracks in film on a steel sheet surface, of 20 μm or less per 10000 μm<sup>2</sup> of the film,~~ to magnetic domain refinement after final annealing such that thermal strain is introduced in a linear like manner in a direction intersecting a rolling direction of the steel sheet, with magnetic domain refinement interval D (mm) in the rolling direction, from a side of the steel sheet corresponding to the winding outer peripheral side of a coiled steel sheet at the stage of the final annealing **such that a deflection of the grain oriented electrical steel sheet is 3 mm or less per unit length: 500 mm in the rolling direction of the steel sheet,**

wherein D satisfies following formula:

$$0.5/(\Delta\beta/10) \leq D \leq 1.0/(\Delta\beta/10),$$

$\Delta\beta$  (°) represents variation of angle  $\beta$  (angle formed by <001> axis closest to the rolling direction, of crystal grain, with respect to the steel sheet surface) per unit length: 10 mm in the rolling direction within a secondary recrystallized grain of the steel sheet."

Dependent claims 2 and 3 refer to preferred embodiments.

V. The appellant essentially argued as follows.

The submission of the new request was a reaction to the objections raised for the first time in the board's communication.

Method claim 1 was based on the method claim as originally filed. The replacement of the feature "total crack length" in original claim 4 with parameters relating to the steel, to its coating and to operating conditions during the flattening annealing step was based on the examples and on the general disclosure of the application as originally filed.

- VI. The appellant requested that the decision under appeal be set aside and that a European patent be granted on the basis of the sole request (labelled as Auxiliary Request VI) filed during oral proceedings.

## **Reasons for the Decision**

### *Auxiliary Request VI*

#### 1. Admissibility

- 1.1 The summons to oral proceedings before the board was issued in August 2019, i.e. before the entry into force of RPBA 2020. Therefore Article 13(1) and (3) RPBA 2020 applies to amendments to a party's case, not Article 13(2) RPBA 2020; instead Article 13 RPBA 2007 applies (see Article 25(3), sentence 2, RPBA 2020).

As the criteria underpinning Article 13(1) RPBA 2020 are based on the case law developed through the stringent application of the requirements of Article 13(1) RPBA 2007, they do not contradict each other; rather Article 13(1) RPBA 2020 is to be seen as the more detailed definition of the criteria to be taken into account. In general, therefore, Article 13(1) RPBA

2020 is to be applied to any amendment made to a party's appeal case after the grounds of appeal or reply has been filed.

This applies in particular to the present case.

- 1.2 During the appeal proceedings, in its communication in accordance with Article 15(1) RPBA 2007 the board raised objections with regard to Articles 84 and 123(2) EPC, some of which had not been raised in the decision under appeal. Unlike the main request filed with the notice of appeal (see point III. above), the (sole) claim request at issue, filed in the course of the oral proceedings, clearly overcomes the above-mentioned objections, as will be shown below.

Applying the criteria outlined above, particularly in view of the fact that the amendments are directed to issues not raised before and that they clearly overcome all the objections raised in the communication under Article 15(1) RPBA 2007 and are not detrimental to procedural economy, the board admits auxiliary request VI in consideration of Article 13(1) RPBA 2020.

## 2. Amendments

For the following reasons, the claims fulfil the requirements of Article 123(2) EPC.

- 2.1 Method claim 1 is based on claim 4 as originally filed.

The following features of claim 1 are disclosed in passages relating to the examples of the application as originally filed:

- the in-furnace tension of 10 MPa or less (page 12, line 29)

- the temperature of 800°C during the flattening annealing step (page 12, line 4)
- the forsterite film on the steel sheet (page 11, line 26)

The generalisation of the specific Si content of the steel sheets in the examples from 3 mass% (page 11, line 27) to 2.0 mass% to 8.0 mass% has a basis on page 9, lines 5 to 8.

The "insulating coating" in the examples (page 12, line 1) is not inextricably linked to the other features of the examples since there is no indication that the insulating coating has an influence on the crack length and/or the degree of deflection of the sheet. There is therefore no unallowable intermediate generalisation.

- 2.2 The results in Table 1 (column "Total length of cracks ( $\mu\text{m}/10000\mu\text{m}^2$ )") show that if the steel sheet respects the parameters of claim 1 the total length of cracks remains below 20  $\mu\text{m}$  per 10000  $\mu\text{m}^2$ . Consequently, replacing the feature relating to the total length of cracks of 20  $\mu\text{m}$  or less with these parameters and operating conditions does not infringe the requirements of Article 123(2) EPC.
- 2.3 The definition of the final deflection is derived from the general disclosure on page 4, lines 28/29 as originally filed.
- 2.4 The issues pursuant to Article 123(2) EPC raised in the communication under Article 15(1) RPBA 2007 have become irrelevant since the features that were objected to have been removed from the claims.



2.5 Dependent claims 2 and 3 are identical to claims 5 and 6 as originally filed, apart from the adaptation of the back-reference.

### 3. Clarity

For the following reasons, the claims meet the requirements of Article 84 EPC.

3.1 The features objected to in the decision under appeal and in the board's communication under Article 15(1) RPBA 2007 have been deleted. The related objections are consequently irrelevant.

3.2 The application as filed presents the feature maximum "total length of cracks", which appeared in the claims on which the decision under appeal was based, as being essential for solving the technical problem of reducing iron loss (page 3, lines 17-18, for example). Although this feature is no longer mentioned in amended claim 1 at issue, the claims are nevertheless supported by the description. Indeed, as shown above under point 2.2, the features introduced into claim 1 do entail a total length of cracks of 20  $\mu\text{m}$  or less per 10000  $\mu\text{m}^2$ .

### 4. Remittal

The decision under appeal only dealt with the requirements of Articles 84 and 123(2) EPC. Patentability was not discussed either in the decision under appeal or, according to the minutes, during the oral proceedings at the department of first instance.

As indicated in Article 12(2) RPBA 2020, the primary object of the appeal proceedings is to review the decision under appeal in a judicial manner.

Consequently, the only judicial review possible in the present appeal proceedings is that of the requirements of Articles 84 and 123(2) EPC.

Not remitting the case to the examining division would require the board to perform these tasks in both first and last-instance proceedings and to effectively replace the examining division rather than review the contested decision in a judicial manner (see T 0731/17, item 7 of the Reasons).

Thus, "special reasons" within the meaning of Article 11 RPBA 2020 for a remittal to the department of first instance for further prosecution exist in the present case.

## Order

### For these reasons it is decided that:

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

The Registrar:

The Chairman:



A. Chavinier-Tomsic

E. Bendl

Decision electronically authenticated