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# Datasheet for the decision of 11 October 2012

**Case Number:** T 0086/09 - 3.3.05

**Application Number:** 98905643.7

**Publication Number:** 905718

**IPC:** H01F 1/11, H01F 1/113, C04B 35/26, H02K 1/02, G11B 5/706

**Language of the proceedings:** EN

**Title of invention:**
Oxide magnetic material, ferrite particle, sintered magnet, bonded magnet, magnetic recording medium and motor

**Patentee:**
TDK Corporation

**Opponents:**
Ssangyong Materials Corporation
Johnson Electric Industrial Manufactory Limited

**Headword:**
Sintered ferrite magnet/TDK

**Relevant legal provisions:**
EPC Art. 84

**Keyword:**
"Clarity (no): ambiguous definition of claimed subject-matter"

**Decisions cited:**
G 0009/91, T 0472/88

**Catchword:**
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**Case Number:** T 0086/09 - 3.3.05

# D E C I S I O N
**of the Technical Board of Appeal 3.3.05**
**of 11 October 2012**

**Appellant**: (Patent Proprietor)
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**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office posted 17 November 2008 revoking European patent No. 905718 pursuant to Article 101(3)(b) EPC.**

**Composition of the Board:**

**Chairman:** G. Raths
**Members:** B. Czech
S. Hoffmann

## Summary of Facts and Submissions

I. The appeal is from the decision of the opposition division revoking European patent No. 0 905 718.

II. The independent claims 1 and 4 of the patent as granted read as follows:

"*1. An oxide magnetic material comprising a primary phase of ferrite with a hexagonal structure and having a composition containing A, R, Fe, and M wherein*

*A is at least one element selected from the group consisting of strontium, barium, calcium and lead, with strontium being essentially contained in A,*

*R is at least one element selected from the group consisting of bismuth and rare earth elements inclusive of yttrium, with lanthanum being essentially contained in R, and*

*M is cobalt or cobalt and zinc,*

*the proportions in total of the respective elements relative to the quantity of the entire metal elements are*

*A: 3 to 9 at%,*

*R: 0.5 to 4 at%,*

*Fe: 86 to 93 at%, and*

*M: 0.5 to 3 at%.*

*and wherein the proportion of cobalt in M is at least 10 at%.*"

"*4. A sintered magnet comprising the oxide magnetic material of claim 1.*"

III. The patent was revoked by the opposition division on the ground that the subject-matter of the amended

claim 1 according to the request then on file was not inventive.

IV. Under cover of its statement of grounds of appeal the appellant filed fourteen sets of amended claims as main and 1st to 13th auxiliary requests. Under cover of a further letter, it filed *inter alia* three further sets of amended claims as 14th to 16th auxiliary requests. It held that the amendments to the claims complied with the requirements of Article 123(2) and (3) EPC and that the claimed subject-matter was not rendered obvious by the cited prior art.

V. In their respective replies to the statement of grounds and subsequent letters, both respondents questioned the allowability of the amendments under Articles 123(2)(3) EPC and maintained that the claimed subject-matter was obvious.

VI. In a communication issued in preparation for the oral proceedings, the board drew the parties' attention to several points of potential importance, including the admissibility of the appellant's requests and a question concerning the compliance of the amended claims with the requirement of Article 123(3) EPC, considering that they appeared "*neither to preclude the presence of Zn, nor to impose the previous limitation on the amount of Zn, if present*".

VII. In a further written submission, respondent 1 questioned the admissibility of the appellant's requests. It also held that the scope of claim 1 had been broadened by the amendments with respect to the maximum Zn content of the material.

VIII. Oral proceeding were held on 11 October 2012.

At the beginning of the oral proceedings, the appellant withdrew most of its auxiliary requests and only upheld the main request and the 4th, 5th, 7th, 11th and 13th auxiliary requests as previously on file.

The pending objection under Article 123(3) EPC with respect to the Zn content of the magnet according to claim 1 of the main request was then extensively discussed. In particular, the possibility of Zn being present in amounts going beyond 90% of 3 at% was addressed. The appellant held that the presence of an amount of Zn, if any, which was not part of M, e.g. impurities, did not matter. Thereupon, respondent 2 considered that the clarity (Article 84 EPC) of claim 1 was questionable due to the amendment consisting in the incorporation of a formula supposed to express the composition of an oxide magnetic material which could comprise substantial amounts of elements not referred to in the formula.

The board informed the parties of its provisional conclusion that in the context of claim 1 the feature comprising the formula appeared to be so ambiguous (Article 84 EPC) that it gave rise to an objection under Article 123(3) EPC.

Thereupon, the appellant withdrew all its pending requests and replaced them by a sole request labelled "new request". Claim 1 according to said new request has the following wording:

"*1. A sintered magnet comprising an oxide magnetic material, wherein the oxide magnetic material comprises a primary phase of ferrite with a hexagonal structure and has a composition containing,*
*in terms of the proportions in total of the respective elements relative to the quantity of the entire metal elements*
*- 3 to 9 at% of at least one element selected from Sr, Ba, Ca and Pb, wherein the proportion of Sr in said at least one element is at least 70 at%,*
*- 0.5 to 4 at% of at least one element selected from Bi and rare earth elements inclusive of Y, wherein the proportion of La in said at least one element is 100 at%,*
*- 86 to 93 at% of Fe, and*
*- 0.5 to 3 at% of Co or Co and Zn, wherein the proportion of cobalt in the Co or Co and Zn is at least 10 at%";*
*and the compositional ratio of the oxide magnetic material is represented by the formula* $A_{1-x}R_x(Fe_{12-y}M_y)_zO_{19}$, *wherein*
*A is at least one element selected from Sr, Ba, Ca and Pb, wherein the proportion of Sr in A is at least 70 at%,*
*R is at least one element selected from Bi and rare earth elements inclusive of Y, wherein the proportion of La in R is 100 at%, and*
*M is Co, and*
$0.04 \leq x \leq 0.5$,
$0.04 \leq y \leq 0.5$,
$0.8 \leq x/y \leq 2$, *and*
$0.7 \leq z \leq 1.2$."

Both respondents considered that claim 1 according to this new request was contradictory in itself, and hence unclear (Article 84 EPC), having regard to the Zn content of the oxide magnetic material.

The appellant held that the amended claim 1 overcame the previous objection under 123(3) EPC and that its wording clearly expressed that the oxide magnetic material, represented by the indicated structure formula, contained no Zn. Further additives and/or impurities possibly present were not the "prime focus".

IX. The appellant requested that the decision under appeal be set aside and that a patent be maintained in amended form on the basis of claims 1 and 2 of the new request filed at the oral proceedings.

The respondents both requested that the appeal be dismissed.

## Reasons for the Decision

1. Admissibility of the appellant's new request

1.1 The request at issue was filed at the oral proceedings before the board in response to objections that materialised to their full extent only in the course of said oral proceedings (see point VIII above).

1.2 Since the request constitutes an attempt to overcome said objections, the board decided to admit it despite its late filing (Article 13(3) RPBA).

2. Clarity of claim 1 (Article 84 EPC)

2.1 The wording of claim 1 at issue differs considerably from the wording of the combined claims 4 (*sintered magnet*) and 1 (definition of the *oxide magnetic material* comprised in the *sintered magnet* according to claim 4) as granted, in particular having regard to the features defining the *oxide magnetic material*.

2.2 In accordance with established case law, claim 1 at issue is thus open to objections under Article 84 EPC insofar as the objections arise from the amendments to the claim; see e.g. decisions G 9/91 (OJ EPO 1993, 408), reasons point 19, and T 472/88 (of 10 October 1990), reasons point 2.

2.3 Claim 1 at issue is directed to a "*sintered magnet comprising an oxide magnetic material*" and comprises a twofold definition of said "*oxide magnetic material*":

i) On the one hand, the "*oxide magnetic material*" is characterised in that "*it has a composition containing, in terms of the proportions in total of the respective elements relative to the quantity of the entire metal elements*", several elements, the "*proportions*" thereof being expressed in the form of numerical at% ranges. Concerning the proportion of the metal element Zn, the following is indicated: "*0.5 to 3 at% of Co or Co and Zn, wherein the proportion of cobalt in the Co or Co and Zn is at least 10 at%*".

ii) On the other hand, said "*oxide magnetic material*" is defined in terms of its "*compositional ratio*", which "*is represented by the formula* $A_{1-x}R_x(Fe_{12-y}M_y)_zO_{19}$", which

formula is supplemented by specific indications concerning the nature of A, R and M as well as some numerical ranges for x, y, z and x/y, including in particular the indication "*M is Co*".

2.4 The first definition i) can be understood to relate, in one alternative, to an "*oxide magnetic composition*" containing "*0.5 to 3 at% ... Co and Zn*", of which at least 10 at% must be Co, with the remainder i.e. up to 90 at% of the amount of "*Co and Zn*", being Zn. According to said first definition, the "*oxide magnetic material*" may thus comprise Zn in an amount of up to 90 at% of the maximum of 3 at% consisting of the "*Co and Zn*" component of the composition.

In contrast thereto, the second definition ii) implies that no Zn at all is present in the "*oxide magnetic material*", or at most only very minor amounts to be considered as impurities.

2.5 The above analysis shows that there is a flagrant discrepancy between the two definitions given in claim 1. The consequence of the two contradictory indications is that claim 1 is ambiguous as to the maximum proportion of Zn that may be present in the "*oxide magnetic material*".

2.6 In view of this ambiguity, the claim lacks the clarity required by Article 84 EPC.

2.7 Consequently, the appellant's request must be refused.

## Order

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar The Chairman

C. Vodz G. Raths