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**Datasheet for the decision
of 4 April 2012**

Case Number: T 0738/09 - 3.3.03

Application Number: 98929810.4

Publication Number: 933401

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C08K 9/04, C08L 23/00,
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Language of the proceedings: EN

Title of invention:
Synthetic resin composition having resistance to thermal
deterioration and molded articles

Patent Proprietor:
KYOWA CHEMICAL INDUSTRY CO., LTD.

Headword:
-

Relevant legal provisions:
EPC Art. 54

Keyword:
"Novelty - yes"
"Remittal for further prosecution"

Decisions cited:
-

Catchword:
-



Case Number: T 0738/09 - 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 4 April 2012

Appellant: KYOWA CHEMICAL INDUSTRY CO., LTD.
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office dated 9
September 2008 and posted 28 October 2008
concerning maintenance of the European patent
No. 933401 in amended form.

Composition of the Board:

Chairman: B. ter Laan
Members: M. C. Gordon
C.-P. Brandt

Summary of Facts and Submissions

I. The appeal by the patent proprietor lies against the decision of the opposition division of 9 September 2008 and posted 28 October 2008 concerning maintenance in amended form of European patent number EP 933 401 B1, based on application EP 98 929 810.4.

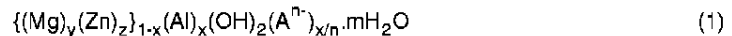
II. The granted patent was based on 14 claims whereby claim 1 read as follows:

1. A synthetic resin composition having heat deterioration resistance comprising:

(A) 100 parts by weight of a synthetic resin; and

(B) 0.001 to 10 parts by weight of hydrotalcite particles defined by the following (i) to (iv):

(i) the hydrotalcite particles are represented by the following chemical structure formula (1):



wherein A^{n-} is at least one anion having a valence of n , and x , y , z and m are values which satisfy the following expressions:

$$0.1 \leq x \leq 0.5, \quad y + z = 1, \quad 0.5 \leq y \leq 1 \\ 0 \leq z \leq 0.5, \quad 0 \leq m < 1;$$

(ii) the hydrotalcite particles have an average secondary particle diameter measured by a laser diffraction scattering method of 2 μ m or less;

(iii) the hydrotalcite particles have a specific surface area measured by a BET method of 1 to 20 m^2/g ; and

(iv) the hydrotalcite particles contain an iron compound and a manganese compound in a total amount of 0.02 wt% or less in terms of metals (Fe + Mn).

Claims 2-12 were directed to preferred embodiments of the composition of claim 1.

Claim 13 was directed to a moulded article formed from the composition of any of claims 1-12.

Claim 14 read as follows:

14. Use of the hydrotalcite particles as defined in any one of claims 1 to 8 to suppress the heat deterioration of a synthetic resin at the time of thermally molding the resin.

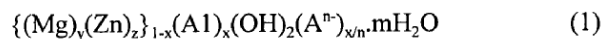
Two notices of opposition against the patent were filed on 27 June 2005 (Opponent OI) and 29 June 2005 (Opponent OII), requesting revocation of the patent. Both opponents invoked the grounds of opposition pursuant to Art. 100(a) EPC (lack of novelty, lack of inventive step). Opponent II also invoked the ground pursuant to Art. 100(b) EPC (insufficiency of disclosure).

III. By letters of 25 August 2008 (Opponent I) and 5 September 2008 (Opponent II) both oppositions were withdrawn.

IV. The decision of the opposition division was based on the claims of the patent as granted as the main request and a set of 14 claims, submitted during the oral proceedings, as the auxiliary request.

Claim 1 of the auxiliary request read as follows:

1. Use of hydrotalcite particles to suppress the heat deterioration of a synthetic resin at the time of thermally molding the resin, wherein
 - (i) the hydrotalcite particles are represented by the following chemical structure formula (1):



wherein A^n is at least one anion having a valence of n , and x , y , z and m are values which satisfy the following expressions:

$$\begin{aligned} 0.1 \leq x \leq 0.5, & \quad y + z = 1, & \quad 0.5 \leq y \leq 1, \\ 0 \leq z \leq 0.5, & \quad 0 \leq m < 1; \end{aligned}$$

- (ii) the hydrotalcite particles have an average secondary particle diameter measured by a laser diffraction scattering method of 2 μ m or less;
 - (iii) the hydrotalcite particles have a specific surface area measured by a BET method of 1 to 20 m^2/g ; and
 - (iv) the hydrotalcite particles contain an iron compound and a manganese compound in a total amount of 0.02 wt% or less in terms of metals (Fe + Mn).

V. The decision under appeal relied *inter alia* on the following documents:

- B10: EP-A-0 332 514
- B11: Product data sheets for Alcamizer 1,2,4 and 4-2
- B12: Product data sheet for Alcamizer 1,2,4 and 4-2.
- B18: US-A-5 141 980
- B19: WO-A-95/33005
- B21: EP-B-0 918 740
- B30: Alcamizer Catalogue of Kyowa Chemical Industry Co. Ltd, published 01.03.1983 and English Language translation (B30a)
- B31: Nosu, T. "Alcamizer: Excellent Thermal Stabilizing Effect - Use of Stabilizers of Food Bottle" Japan Plastics Courier, No. 1283, 15.02.1988, cover and page 3 and English language translation (B31a)
- B32: Alcamizer Catalogue of Kyowa Chemical Industry Co. Ltd., published 01.10.95 and English language translation (B32a)
- B33: Catalogue of DHT-4a, published January 1996 and English language translation (B33a)
- B36: EP-A-344 321
- B50: JP-8-157 671 and a partial English language translation thereof (B50a)
- B52: WO-A-98/01412
- B53: WO-A-94/19308
- B65: Further copy of B12
- B66: Product data sheet of DHT-4a dated 22 February 1995.

In the following, page and line references to B30, B31, B32, B33 and B50 are with respect to the provided English language translations.

VI. According to the decision:

(a) *Main request* - Art. 54 EPC

The subject-matter claimed was anticipated by the disclosures of B10, B18, B19, B21, B30-33, B36, B50, B52, B53 in association with B11, B12 and B65 (relating to Alcamizer hydrotalcite materials) and B66 (relating to DHT-4a hydrotalcite materials). The latter group of documents were seen as complete and convincing evidence that the products Alcamizer and DHT-4A, used in the former group of documents, fulfilled the criteria (i) to (iv) of claim 1 of the patent in suit, that they had been available before the priority date of the patent in suit and had been analysed (with reference to G 1/92 OJ EPO 1993, 277).

(b) *Auxiliary request*

Since the claims of the auxiliary request were found to comply with the requirements of the EPC, it was held that the patent in suit could be maintained in amended form on the basis of the auxiliary request.

VII. On 5 January 2009 the patent proprietor lodged an appeal against the decision, the prescribed fee being paid on the same date.

VIII. The statement of grounds of appeal dated 26 February 2009 was received on 2 March 2009, together with two sets of claims as first and second auxiliary requests. In response to a third party observation dated

10 October 2011, the appellant filed further comments as well as a new second and a third auxiliary request by letter dated 12 March 2012.

By letter of 3 April 2012 the appellant clarified the structure of its requests.

IX. The arguments of the appellant can be summarised as follows:

Main request

Claim 1 of the main request was directed to a resin composition containing 0.001 to 10 parts by weight of hydrotalcite (HT) particles, which particles had to satisfy four criteria (i) to (iv).

According to the appealed decision the disclosures of B10, B18, B19, B21, B30-32, B36, B50, B52, and B53 related to the prior use of commercial Alcamizer hydrotalcite materials; B33 and B36 related to the prior use of DHT-4A hydrotalcite materials. Lack of novelty had been concluded on the basis of B12, B65 and B66. However, not only was the authenticity of those documents doubtful and the publication date uncertain, those documents also did not show beyond all reasonable doubt that particles with the required criterion (iv) existed. In particular, it was not clear that the data mentioned were actual, measured data of samples really having been used. Furthermore, in view of the technical developments over time, it was unlikely that the data were correct. Furthermore even if some of the hydrotalcites had met the required criteria, it was not shown that all of the existing Alcamizer and DHT-4A had those properties. Finally, even if it had been shown that hydrotalcite particles with the required

properties existed at the time, it was still not proven that they had in fact been used in a synthetic resin composition in the proportion according to present claim 1 and with the other criteria (i) to (iii) also having been met.

X. The Patentee requests that

- 1). The Board finds that the main request is novel over documents B10, B18, B19, B21, B30-33, B36, B50, B52 and B53, and remits the case back to the opposition division for further consideration.
- 2). If the Board is not willing to remit the case back to the opposition division that a patent be granted on the basis of the first request deemed allowable, following sequential consideration of the main request and then first, second and third auxiliary requests.
- 3). If the Board were minded to reach a decision that the main request was unallowable for any reason, that oral proceedings be convened.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. *Article 54 EPC*

Claim 1 of the main request is directed to a synthetic resin composition having heat deterioration resistance

- comprising 100 parts by weight of a synthetic resin and 0.001 to 10 parts by weight of hydrotalcite particles defined by four criteria (See section II, above).
- 2.1 Documents B10, B18, B19, B21, B30-33, B36, B50, B52 and B53, upon which the finding of lack of novelty in the decision under appeal relied, all disclose synthetic resins with certain named products indicated by tradenames (i.e. various types of Alcamizer and DHT-4a), which the parties agreed were hydrotalcites. The issue was whether those hydrotalcites had the four properties required by present claim 1.
- 2.1.1 B10 discloses in the examples compositions of 100 parts PVC and 0.7 parts of a hydrotalcite identified as "Alcamizer 1". The properties of this hydrotalcite are disclosed in B10 only to the extent of their molecular composition (page 2, line 25 - page 3, line 7). In the description (page 3, line 7) reference is made to "Alcamizer II" whilst according to the footnote of table 1 of B10 "Alcamizer I" was employed. B10 does not disclose features (ii)-(iv) as set out in operational claim 1.
- 2.1.2 B18 discloses a composition of a thermoplastic resin and a hydrotalcite, the chemical constitution of which, as disclosed on page 6 of B18, is identical to that given on page 3 of B10 and is identified as "Alcamizer II". Features (ii)-(iv) of the hydrotalcites are not disclosed.
- 2.1.3 B19 relates to a composition of PVC with a metal stabilizer. In example 5 "Alcamizer 4" is employed, the chemical composition thereof being disclosed.

Requirements (ii)-(iv) are not disclosed for this hydrotalcite.

2.1.4 B21 discloses stabiliser compositions for polymers containing as one component thereof either Alcamizer 1 or Alcamizer 4. Neither the chemical constitution nor any other properties of these components are disclosed in the document.

2.1.5 B30 is a document from Kyowa Chemical Industry Co., Ltd entitled "Alcamizer (Thermal Stabilizer for PVC)". According to the letter accompanying B30 (letter from Opponent II of 16 April 2008), and not disputed by the appellant, this is a catalogue which was published on 1 March 1983.

Starting at page 5 blends of PVC with Alcamizer are reported. The constitution of the blends is shown in Tables 3 and 4. These disclose a synthetic resin composition containing hydrotalcite in amounts of between 0.5 and 2.0 parts per hundred parts PVC. B30 discloses the molecular constitution, BET surface area and particle size distribution, the majority of particles (92.7%) being less than 1 μm . The "heavy metal content" is given as "not more than 10ppm". However it is not explained which metals are hereby measured.

In this connection the patent proprietor during the opposition proceedings (letter of 8 July 2008) submitted B47, stated to be a copy of the currently used in-house standard for heavy metal analysis and B48, a declaration by inventor Nosu stating that the B47 method was that which would have been used in 1995.

According to this document and the written submissions made in the accompanying letter this method detects Pb only but not Fe or Mn. This submission has not been challenged, let alone disproven by either of the former opponents or any of the third parties. Based on this it has to be concluded that the report of "heavy metal" content in B30 does not provide any information about the content of (Fe+Mn). Accordingly B30 provides no evidence as to whether the Alcamizer product reported therein satisfies the requirement of feature (iv) of operative claim 1.

2.1.6 The information content of B31 is essentially the same as that of B30, including the reported heavy metal content.

Thus for the same reasons as indicated for B30 document B31 does not disclose feature (iv) of claim 1.

2.1.7 B32 discusses PVC stabilization by Alcamizer in somewhat more detail than B30 or B31, and contains essentially the same information about the constitution of the Alcamizer materials, including the heavy metal content. As in the case of B30 there is no information in this relating to feature (iv) of the claim.

2.1.8 B33 is a catalogue of DHT-4a hydrotalcite, apparently dated January 1996. This discloses the molecular formula, the BET surface area and particle size distribution. The content of "heavy metal" is given, without however specifying which metal(s) are hereby denoted. Consequently B33 does not disclose feature (iv), i.e. the content of (Fe+Mn) of DHT-4a.

2.1.9 B36 relates to synthetic resin compositions containing inorganic substances, *inter alia* hydrotalcite. In examples G, H and I (page 27, Table 7) "mixed products" - in effect premixes of additives for polymers - are reported containing either DHT-4a or Alcamizer 4 hydrotalcites. These are then combined with PVC in the examples starting at page 28. The only information given about the constitution of these hydrotalcites is that Alcamizer 4 "is a hydrotalcite compound in which part of Mg is substituted with Zn". Accordingly there is no disclosure of features (i)-(iv) of the operative claim 1.

2.1.10 B50 discloses compositions of PVC with Alcamizer 1, 2 or 4. B50 gives the molecular constitution of Alcamizer 2 and 4 but no other information. Thus features (ii)-(iv) of claim 1 are not disclosed.

2.1.11 B52 is a member of the same patent family as B21 and the comments made with respect thereto correspondingly apply.

2.1.12 B53 refers in general terms to compositions of a polymer containing as one possible additive hydrotalcite, the Alcamizer product family being specifically mentioned (page 7). Here it is further disclosed, in general terms, that the hydrotalcites marketed by Kyowa have a BET surface area of below 30 g/m^2 and are usually surface modified. This information is too general to anticipate feature (iii) of operative claim 1. No further information is provided about the constitution of the hydrotalcites. In the examples compositions are reported containing

PVC and Alcamizer 4. There is thus no disclosure of features (ii)-(iv) of operative claim 1.

2.2 From the above it is clear that although these documents disclose some properties of the hydrotalcite, none discloses all the properties thereof. Furthermore the property of having less than 200 ppm (Fe+Mn), indicated as (iv) is disclosed in none of these documents. The opposition division used documents B11, B12, B65 and B66 in order to establish the properties of the products used in the above-cited documents.

2.2.1 Even to the extent that in the above cited documents specific grades of the hydrotalcites rather than just general (commercial) classes are disclosed, the fact remains that tradenames are not a suitable means for identifying the exact composition of the product bearing that designation. Even if the precise composition sold under a certain tradename, in a certain territory, at a certain point in time could be established, that does not mean that the actual product going by the tradename employed according to a specific document had not been subject to prior or subsequent modification. Therefore, in order to establish that the compositions disclosed by B10-B53 do fulfil all the requirements of present claim 1 and in particular that the hydrotalcites mentioned in those documents have all the required properties, a direct and unambiguous link would have to be demonstrated between the tradename mentioned and the constitution of the product used under it in that specific instance.

2.2.2 B11 is a single page bearing the name "Kyowa Chemical Industry Co., Ltd" and "Research Center". It is dated 9 July 1996 and is entitled "Specification Alcamizer".

This seemingly provides a complete description of the properties of Alcamizer-1, Alcamizer-2, Alcamizer-4 and Alcamizer 4-2, i.e. the properties corresponding to features (i)-(iv) of operative claim 1.

However no evidence has been advanced that would allow the Board conclude that the information contained in B11 related to a freely available (commercial) product that had been on the market before the relevant application date of the patent in suit. Further no evidence to establish any link between this document and any of the cited documents disclosing compositions of polymers with Alcamizer has been provided. Thus D11 fails to establish the nature of the product available under these names or designations at all possible instances. In particular the information in this document does not serve to establish unequivocally the nature of the products bearing these designations that had been employed in the various documents disclosing compositions of synthetic resin.

2.2.3 B12 suffers from the same deficiencies as B11 in that no evidence has been provided that the products reported therein were ever made commercially available, and no link has been established between the products reported in this document and any of those documents cited as discussing polymers together with hydrotalcites. Accordingly, as for B11 this document cannot establish the properties of the products of the indicated designations that had been employed in the various citations disclosing polymer compositions.

2.2.4 B65, submitted by an anonymous third party with letter of 20 August 2008 was stated to be a copy of B12. Accordingly *prima facie* this document provides the same information as B12 and suffers from the same defects. Furthermore, and assuming for the sake of argument that B65 is an independent document, no link has been established between this and any of the citations discussed in the foregoing section and hence no evidence that the constitution of the various Alcamizer grades reported in this document would correspond to that of any of the identically named compounds used in any of the disclosures of compositions of synthetic resins, or indeed to any product ever made publicly available at any time. Hence B65 adds nothing to the information provided by B12.

2.2.5 B66 contains a table giving the impurity content of DHT-4A and DHT-4A-2. This document suffers from the same defects as indicated for B11, B12 and B65 since there is no evidence that the properties (impurity content) reported here corresponded to any products which were placed on the market at any time. Furthermore there is no link between this document and any of the documents disclosing compositions of synthetic resins with hydrotalcites.

2.2.6 The conclusion with regard to B11, B12, B65 and B66 is that there is no evidence that products having the indicated properties were ever on the market and freely available. Moreover, there is no link between any of these documents and the documents disclosing

compositions of synthetic resins and hydrotalcites indicated by tradenames.

As a consequence it is not permissible to combine the information of any of the documents B11, B12, B65, B66 with any of those documents disclosing compositions of polymers with hydrotalcites.

2.3 Thus there is no clear and unambiguous disclosure that the hydrotalcites employed in the documents disclosing compositions of polymers with hydrotalcites have all the properties required by present claim 1 and hence that the resin compositions disclosed in those documents fall under the claimed subject-matter.

2.4 Consequently the subject matter of claim 1 of the main request is novel. As all further claims are dependent on claim 1 this conclusion applies to these as well.

2.5 The main request therefore meets the requirements of Art. 54 EPC.

3. *Art. 56 EPC*

Claims 1-13 of the main request are directed to products, either a composition or an article formed from this composition. Claim 14 is directed to the use of hydrotalcite particles to suppress the heat deterioration of a synthetic resin.

The first auxiliary request, which was found to meet the requirements of Art. 56 EPC (see section VI.(b), above) however had claims of a different category,

namely use, corresponding to claim 14 of the main request.

During the written opposition proceedings the opposition division did not provide even a provisional opinion on the inventive step of the subject matter of the main request, i.e. the defined compositions.

Under these circumstances the Board considers that the appropriate course of action is not to deal with inventive step but, in accordance with request number 1 of the appellant, to remit the case to the first instance for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to continue prosecution on the basis of the claims of the main request.

The Registrar:

The Chairman:

E. Goergmaier

B. ter Laan