Internal distribution code:
(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 15 November 2013

Case Number: T 2350/11 - 3.3.01

Application Number: 05716704.1

Publication Number: 1718704

IPC: C09B5/62

Language of the proceedings: EN

Title of invention:
PERYLENE PIGMENT COMPOSITION AND PROCESS THEREFOR

Applicant:
BASF SE

Headword:
-

Relevant legal provisions:
EPC Art. 84, 123(2)
RPBA Art. 13(1)

Keyword:
"Main request, auxiliary requests 1 and 2: clarity (no)"
"Auxiliary requests 3 to 6: amendments (not allowable) - not unambiguously derivable from the application as filed"
"Auxiliary requests 7 and 8: not admitted"

Decisions cited:
G 0002/88, T 0006/84, T 0337/95, T 0020/94, T 0560/09

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 2350/11 - 3.3.01

D E C I S I O N
of Technical Board of Appeal 3.3.01
of 15 November 2013

Appellant: (Applicant)	BASF SE 67056 Ludwigshafen (DE)
Representative:	Fiesser, Gerold Michael Herzog Fiesser & Partner Postfach 26 02 32 80059 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 20 June 2011 refusing European patent application No. 05716704.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. Lindner
Members: G. Seufert
L. Bühler

Summary of Facts and Submissions

I. The applicant lodged an appeal against the decision of the examining division refusing European patent application No. 05 716 704.1.

II. In this decision the following numbering will be used to refer to the documents

(1) US 4,153,602
(2) DE 2726682
(3) GB 923 721

III. The decision under appeal was based on the set of claims filed with letter of 26 April 2011.

The examining division held that the claimed invention was not sufficiently disclosed due to the absence of a direct and unambiguous method for the preparation of the crude perylene-3,4,9,10-tetracarboxylic acid N,N'-bismethylimide pigments (hereinafter perylene pigments) used as starting materials, including their coloristic characterisation, and in the absence of an objective measurement for the assessment of the desired coloristic properties of the claimed perylene pigment product. The examining division also held that the feature "having a transparent clean yellowish shade" in claims 1 and 9 was unclear and therefore did not comply with Article 84 EPC.

IV. With the statement of grounds of appeal, the appellant resubmitted, as its main request, the set of claims underlying the decision under appeal, and filed auxiliary requests 1 and 2.

Independent claim 1 of the main request, which is the only claim of the main request relevant for the present decision, reads as follows:

"1. A process for the manufacture of a pigmentary form of perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide having a transparent clean yellowish shade, which comprises comminution of a mixture comprising a crude perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide pigment produced by methylation of perylenetetracarboxylic imide with an alkylating agent (method 2) and a crude perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide pigment produced by the condensation of perylenetetracarboxylic anhydride with methylamine (method 1), in the presence of dimerized rosin."

Claims 1 of the first and second auxiliary requests are identical and differ from claim 1 of the main request in that the feature "having a transparent clean yellowish shade" has been deleted.

V. In a communication accompanying the summons to oral proceedings the board expressed its preliminary opinion. In particular, the board indicated that the main request and auxiliary requests 1 and 2 did not comply with Articles 84 and 83 EPC. In addition, the board was of the opinion that the deletion of the feature "having a transparent clean yellowish shade" in auxiliary requests 1 and 2 did not comply with Article 123(2) EPC.

VI. With letter of 15 October 2013 the appellant filed auxiliary requests 3 to 6. Claim 1 of auxiliary request 3 reads as follows (emphasis added by the board):

"1. A process for the manufacture of a pigmentary form of perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide having a transparent clean yellowish shade, which comprises comminution of a mixture comprising a crude perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide pigment produced by methylation of perylenetetracarboxylic imide **with a mean primary particle size of about 0.1 micron in the direction of greatest dimensions with methyl chloride in an aqueous suspension with aqueous sodium hydroxide, comprising slowly heating the mixture to 100°C and keeping this temperature for 4 to 8 hours, cooling the reaction mixture, filtering off the dye deposited by suction and washing free from salts with warm water** (method 2) and a crude perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide pigment produced by the condensation of perylenetetracarboxylic anhydride with methylamine **in aqueous solution in two steps, comprising reacting said anhydride with a solution of at least a 4-fold molar amount of said amine at a temperature below 30°C, then heating the reaction mixture to a temperature of 70° to 150°C, and isolating the pigment** (method 1), in the presence of dimerized rosin."

Claims 1 of auxiliary requests 4 and 6 are identical and differ from claim 1 of auxiliary request 3 in that the feature "having a transparent clean yellowish shade" has been deleted. Claim 1 of auxiliary request 5 is identical to claim 1 of auxiliary request 3.

VII. At the oral proceedings before the board, held on 15 November 2013, the appellant submitted auxiliary requests 7 and 8. Claim 1 of auxiliary request 7 reads as follows (emphasis added by the board):

"1. A process for the manufacture of a pigmentary form of perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide which comprises comminution of a mixture comprising a crude perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide pigment produced by methylation of perylenetetracarboxylic imide with an alkylating agent **crude 2** (method 2) and a crude perylene-3,4,9,10-tetracarboxylic acid N,N'-bis-methylimide pigment produced by the condensation of perylenetetracarboxylic anhydride with methylamine **crude 1** (method 1), in the presence of dimerized rosin, **wherein the product is more transparent than Paliogen (R) Red L 3875, commercially available as Pigment Red 179 from BASF based on the Transparency Ratio TR = (ΔEspl)/(ΔEsdt) with spl=sample and std=standard**."

Claim 1 of auxiliary request 8 differs from claim 1 of auxiliary request 7 in that the feature "**wherein crude 1 has a TR of 2.21 and crude 2 has a TR of 1.16, both after attrition for 2.5 h in glycerol in the presence of 2% KOH**" has been added at the end of the claim.

VIII. The arguments of the appellant, to the extent that they are relevant for the present decision, can be summarised as follows:

- Clarity

The perylene pigment starting materials, which could not be described by any other means than their processes of production, were clearly defined by those processes. In support, reference was made to documents (1) and (2) and examples 2 and 3 (comparative examples) of the patent application. These documents and particularly the examples showed that perylene

pigment starting materials prepared according to the different processes had different physical properties which allowed the skilled person to clearly differentiate between them. In the absence of any evidence to the contrary, there was no reason to doubt that fact. The jurisprudence cited in the board's communication was related to the definition of a product, but not to starting materials in a process for preparing a product. It was therefore not applicable.

- Amendments

The features incorporated into claim 1 could be found in claim 1 of document (1) and in claim 9 and page 4, left column, third paragraph of document (3). Their selection was not arbitrary, but rather included all essential features that belonged together. Both documents were expressly referred to in the application as filed. Amendments of this type had been approved by the case law. In support, reference was made to decision T 6/84 (OJ EPO 1985, 238, point 2 of the reasons).

- Admission of auxiliary requests 7 and 8

These requests had been filed in an attempt to address the board's objection that there was no clear distinction between the perylene pigment starting materials.

IX. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request or, alternatively, on the basis of one of auxiliary requests 1 and 2, all filed with the statement of grounds of appeal, or alternatively on the basis of one of auxiliary requests 3 to 6, filed with

letter of 15 October 2013, or, alternatively, on the basis of auxiliary requests 7 or 8 submitted during oral proceedings.

X. At the end of the oral proceedings the decision of board was announced.

Reasons for the Decision

1. The appeal is admissible.

Main request and auxiliary requests 1 and 2

2. Clarity (Article 84 EPC)

2.1 Article 84 EPC in combination with Rule 43(1) EPC requires that the claims must be clear and define the matter for which protection is sought in terms of the technical features of the invention. These requirements serve the purpose of ensuring that the public is not left in any doubt as to which subject-matter is covered by a claim and which not. Accordingly, a claim cannot be considered clear in the sense of Article 84 EPC if it does not unambiguously allow this distinction to be made (see decisions G 2/88, OJ EPO 1990, 93, point 2.5 of the reasons and T 337/95, OJ EPO 1996, 628, points 2.1 to 2.5 of the reasons). A claim comprising an unclear technical feature, therefore, entails doubts as to the subject-matter covered by that claim. This applies all the more if the unclear feature is essential with respect to the invention in the sense that it is intended to delimit the subject-matter claimed from the prior art, thereby giving rise to uncertainty as to whether or not the subject-matter

claimed is anticipated (see decision T 560/09, not published, point 2 of the reasons).

2.2 Claim 1 of the main request is directed to the preparation of a perylene pigment product having a clean transparent yellowish shade by comminuting two crude perylene pigment starting materials, each of which is characterised by a general production method (methods 1 and 2, see point IV above). According to the established jurisprudence of the boards of appeal, a product that is characterised by its mode of production has to be interpreted in an absolute sense, that is independently of its production (T 20/94, not published, headnote 2). This applies independently of whether the mode of production is used to characterise a product per se or whether it characterises a product used as starting material in a process. Hence, claim 1 of the main request is directed to the manufacturing of a pigment product using two crude perylene pigment starting materials that can be obtained by the processes referred to in claim 1 (i.e. methods 1 and 2), without their preparation being limited to those processes.

Since the chemical structure of the crude perylene pigment starting materials is identical and since the processes referred to in claim 1 are not considered to be limiting features, it is not possible to clearly identify and distinguish between the perylene pigment starting materials. The use of different starting materials is, however, essential to the present invention. This was also confirmed by the appellant.

2.3 According to the appellant, the perylene pigment starting materials were clearly defined by the different methods for their preparation. The products

of the respective methods had different physical properties and it was virtually impossible that the two perylene pigment starting materials were identical. In support, the appellant referred to pages 7 to 8 of document (2) describing a red-brown perylene pigment prepared according to method 2, and to column 3, line 62 to 63 of document (1) disclosing a brilliant red pigment obtained according to method 1. The appellant argued that their outward appearance already showed that these pigments were different products. The person skilled in the art would have no difficulty in objectively distinguishing between these perylene pigments, despite the fact that there was a certain subjective element in colour perception.

As further evidence for the fact that both perylene pigment starting materials were different, the appellant referred to examples 2 and 3 in the table on page 9 of the patent application. In example 2 a pigment prepared according to method 2 and in example 3 a pigment prepared according to method 1 was used. The third column of this table showed different transparency ratios for the respective examples, indicating different physical properties for the two perylene starting materials.

The appellant also argued that, in the absence of evidence to the contrary, there was no reason to doubt that the different processes referred to in claim 1 resulted in different perylene pigment starting materials.

2.4 The appellant's arguments are not considered convincing for the following reasons:

2.4.1 The perylene pigments in documents (1) and (2), relied on by the appellant, are the result of the specific reaction conditions used therein. According to document (1), the brilliant red pigment is the result of a two-step process using a 4-fold molar excess of methylamine at a temperature below 30°C, then heating to 70°C to 150°C (claim 1 and column 3, lines 62 to 63). In example 1 on pages 7 and 8 of document (2) the red-brown filter cake is prepared by mixing perylene-3,4,9,10-tetracarboxylic acid diimide with water, sodium hydroxide and lauryl-trimethylammonium chloride (a surfactant the addition of which belongs to the inventive concept of document (2)) followed by the addition of methylene chloride, heating to 100°C, keeping at this temperature for 6 hours, pouring into a diluent, adapting the pH and drying. None of these reaction conditions is present in claim 1, which merely indicates the general method for the preparation of the perylene pigment starting materials, that is methylation of perylene tetracarboxylic imide with an alkylating agent and amidation of perylene tetracarboxylic anhydride with methylamine.

The board does not wish to deny that the skilled person may be able to distinguish the perylene pigment prepared under the specific conditions disclosed in document (1) from one prepared according to the method described on pages 7 and 8 of document (2). However, claim 1 is not limited to these particular perylene pigments, by merely referring to the same reaction type and the same starting materials as those used in documents (1) and (2). In this context, the board notes that it is an undisputable fact and well-known to the skilled person that chemical reactions only rarely produce a uniform product. For an unambiguous definition of a particular product it is therefore

necessary to provide not only the starting materials (in the present case perylene tetracarboxylic imide and alkylating agent or perylene tetracarboxylic anhydride and methylamine) but also the reaction conditions, the processing of the reaction mixture, the isolation of the product, etc.

The board also notes that the only given characteristic which distinguishes the perylene pigments prepared according to documents (1) and (2) is their colour (brilliant red and red-brown). Since the latter is the result of the specific reaction conditions, the question how to clearly distinguish between perylene pigments which are not brilliant red and those which are red-brown cannot be answered. In this context, the board notes that colour perception is highly subjective and that the application does not contain a method enabling the colour to be objectively measured.

In summary, the specific processes of documents (1) and (2) resulting in perylene pigments with specific properties cannot be relied on as evidence that the perylene pigments referred to in claim 1 are clearly distinguishable.

2.4.2 Similar reasons apply with respect to examples 2 and 3 of the patent application. The board notes that there is no information available as to how these perylene pigments were produced, apart that is from the indication that they were obtained according to general methods 1 and 2 of claim 1. However, there can be no doubt that in order to carry out these general methods, particular reaction conditions and processing steps had to be selected. The measured transparency values, similar to the colour characteristics mentioned in point 2.4.1 above, are therefore the result of those

unknown conditions. These examples cannot therefore be relied on as evidence for the fact that perylene pigments produced according to general methods 1 and 2 can always be clearly and unambiguously distinguished by this parameter.

2.5 For the reasons set out above, the board concludes that the perylene pigment starting materials are not clearly and unambiguously defined by the general methods referred to in claim 1. This leaves the public in doubt as to which subject-matter is covered by this claim and which not, with the consequence that the requirement of Article 84 EPC is not met.

2.6 Claims 1 of auxiliary requests 1 and 2 differ from claim 1 of the main request only insofar as the feature "having a clear transparent yellowish shade" for the perylene pigment product has been deleted (see point IV above). This amendment has no influence on the definition of the perylene pigment starting materials. Thus, the same considerations and conclusion as in points 2.1 to 2.5 apply. Consequently, these requests must also be refused for contravening Article 84 EPC.

Auxiliary requests 3 to 6

3. Amendments (Article 123(2) EPC)

3.1 Claim 1 of auxiliary request 3 was amended by the addition of a number of features (particle size, temperature, solvent, molar ratio of reactant, etc.; see point VI above) concerning the reaction conditions of methods 1 and 2. None of these features is disclosed in the application as filed.

3.2 This was not disputed by the appellant, who argued rather that these amendments were disclosed by explicit reference to documents (1) and (3) directed to methods 1 and 2. In support of its view the appellant referred to decision T 6/84, which stated in point 2 of the reasons "that structural features of a means for performing a chemical process which are not mentioned in the application documents themselves but in a document to which they refer may be incorporated into a patent claim if they unequivocally form part of the invention for which protection is sought."

3.3 The description of the application as originally filed indicates, on page 1, three general methods for the preparation of perylene 3,4,9,10 tetracarboxylic acid N,N' bis-methylimide pigments: the reaction of a perylene dianhydride with methylamine (method 1), methylation of perylene diimide (method 2), and fusing naphthalic acid N-methylimide with an alkali hydroxide (method 3) (see page 1, lines 8 to 14 and 19 to 22). In this context, the description also mentions three documents, including documents (1) and (3), as **examples** of those methods (see page 1, lines 10 to 11 and line 19 to 20), indicating potential ways of preparing the starting materials of the presently claimed method. No reference to particular parts of the documents is made and there is no indication that specific features disclosed in documents (1) and (3) would have to be considered as part of the original disclosure. There is also no indication anywhere in the application as filed that a particular way of realising method 1 or 2 was critical for the invention. In the examples it is merely stated that the perylene pigment starting materials were produced according to general methods 1 and 2 (page 8, line 16 to 21 and page 9, line 8). In these context, no reference is made to documents (1)

and (3) and the fact that these documents are referred to in general terms on page 1 of the application as filed is not tantamount to a clear and unambiguous disclosure for the incorporation of any feature disclosed in these documents. Hence, contrary to decision T 6/84, in the present case the features disclosed in documents (1) and (3) are not considered to **unequivocally** form part of the invention for which protection is sought.

3.4 For the aforementioned reasons, the board concludes that claim 1 of auxiliary request 3 does not comply with Article 123(2) EPC.

3.5 The same amendments as for claim 1 of auxiliary request 3 have been made for claim 1 of auxiliary requests 4 to 6 (see point VI above). Thus, the same considerations and conclusion as in points 3.3 and 3.4 above apply. Consequently, these requests must also be refused for contravening Article 123(2) EPC.

Auxiliary requests 7 and 8

4. Admission into the proceedings

4.1 Auxiliary requests 7 and 8 were filed at a very late stage in the proceedings, namely at the end of the oral proceedings.

4.2 According to the Rules of Procedure of the Boards of Appeal (RPBA), appeal proceedings in *ex parte* cases are based on the statement of grounds of appeal (Rule 12(1) RPBA). New submissions (requests, facts or evidence) are not entirely precluded; their admission, however, is at the discretion of the boards (Article 114(2) EPC and Article 13(1) RPBA). This

discretion has to be exercised appropriately, requiring the boards to consider all relevant factors, taking into account the specific circumstances of the case. Examples of criteria to be taken into consideration by the boards when exercising their discretion are ***inter alia*** the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy. These criteria are not exhaustive, and the boards have also considered aspects such as the reasons for the new submission or the extent of the amendments.

4.3 The appellant justified the late filing of auxiliary requests 7 and 8 as being a direct reaction to the discussion that took place during oral proceedings and an attempt to overcome the board's objections under Article 84 EPC.

4.4 However, the issues related to Article 84 EPC were already pointed out to the appellant in the board's communication accompanying the summons to oral proceedings. No additional objections under this article were raised during those proceedings. The board also fails to see - and the appellant did not provide - any convincing reasons why the appellant could not have filed requests 7 and 8 together with its reply to the board's communication. Accordingly, the board sees no justification for the late filing of auxiliary requests 7 and 8.

Furthermore, it is not immediately apparent that the additional feature or features in auxiliary requests 7 and 8 are suitable to overcome the board's objections without at the same time giving rise to new clarity issues, in particular in view of the fact that the appellant attempts to improve the clarity of claim 1 by

including a compound designated by a trade mark. With such a designation there can be no certainty that the compound remains unaltered throughout the life of the patent.

4.5 For the aforementioned reasons, the board decided not to admit auxiliary requests 7 and 8 into the appeal proceedings (Article 114(2) EPC and Article 13 RPBA).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Schalow A. Lindner

Decision electronically authenticated