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Datasheet for the decision of 30 October 2020

Case Number: T 2057/17 - 3.3.03

Application Number: 09722883.7

Publication Number: 2254940

IPC: C08K3/04, H01L21/48

Language of the proceedings: EN

Title of invention:
HEATSINKS OF THERMALLY CONDUCTIVE PLASTIC MATERIALS

Patent Proprietor:
DSM IP Assets B.V.

Opponent:
Covestro Deutschland AG

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 123(2)
EPC R. 103(1)(a)

Keyword:
Admittance of the main request, the 1st and 2nd auxiliary requests (yes)
Amendments - added subject-matter (yes) - All requests
Reimbursement of appeal fee - (no)

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Case Number: T 2057/17 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 30 October 2020

Appellant: (Patent Proprietor)	DSM IP Assets B.V. Het Overloon 1 6411 TE Heerlen (NL)
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Appellant: (Opponent)	Covestro Deutschland AG Kaiser-Wilhelm-Allee 60 51373 Leverkussen (DE)
Representative:	Levpat c/o Covestro AG Gebäude 4825 51365 Leverkusen (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 14 July 2017 concerning maintenance of the European Patent No. 2254940 in amended form.**

Composition of the Board:

Chairman	M. C. Gordon
Members:	D. Marquis
	R. Cramer

Summary of Facts and Submissions

I. The appeals of the patent proprietor and the opponent lie from the decision of the opposition division posted on 14 July 2017 concerning the maintenance of European patent No. EP 2 254 940 in amended form on the basis of the 4th auxiliary request filed during the oral proceedings.

II. Claims 1 and 2 of the patent as granted, which corresponded to claims 1 and 2 of the application as filed read:

"1. Heatsink for an electrical or electronic device comprising a plastic body made of a thermally conductive plastic material comprising of [*sic*] an expanded graphite in an amount of at least 20 wt.%, relative to the total weight of the thermally conductive plastic material".

"2. Heatsink for an electrical or electronic device comprising a plastic body made of a thermally conductive plastic material having an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K".

III. A notice of opposition against the patent was filed in which revocation of the patent was requested.

IV. The contested decision was based on:

- a main request and a 1st and 2nd auxiliary request filed with letter of 18 April 2017:
- a 3rd and 4th auxiliary request filed during the oral proceedings and

- a 5th and 6th auxiliary request which corresponded to the 4th and 5th auxiliary request filed on 18 April 2017.

V. The contested decision, as far as it is relevant to the present appeal, can be summarized as follows:

- The absence of the conductivity from claim 1 of the main request did not contravene the requirements of Article 123(2) EPC since in the application as originally filed the coatings were not disclosed mandatorily in combination with the conductivity. Thus the two features could be isolated.

- Since the application as originally filed provided a basis for the process of making the two claimed embodiments, it provided support for the back references of process claim 5 ("Process for making a heatsink[...]as defined in any of the above claims[...]"). Claim 5 of the main request therefore satisfied the requirements of Article 123(2) EPC.

- The main request, the 1st and the 2nd auxiliary requests lacked novelty over D11.

- Claims 1-6 of the 3rd auxiliary request were novel over D3 since multiple selections were necessary which were not disclosed in combination in D3. Claim 1 of the 3rd auxiliary request however lacked inventive step.

- Claim 1 of the 4th auxiliary request was inventive over D13.

VI. Both the opponent and the patent proprietor filed an appeal against the decision. Inter alia the opponent

requested reimbursement of the appeal fee.

VII. In their statement of grounds of appeal, the patent proprietor submitted a main request, as well as a 1st and a 2nd auxiliary request, whereby the second auxiliary request was the set of claims as upheld by the opposition division.

Claims 1 and 2 of the main request read:

"1. Heatsink for an electrical or electronic device comprising a plastic body made of a thermally conductive plastic material comprising an expanded graphite in an amount of at least 20 wt.%, relative to the total weight of the thermally conductive plastic material, heatsink comprising a metal coating layer covering at least part of the surface of the plastic body or comprising a coating layer, consisting of an electrically insulating plastic material, covering at least part of the surface of the plastic body."

"2. Heatsink for an electrical or electronic device according to claim 1, wherein the plastic body made of a thermally conductive plastic material has an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K".

Claim 1 of the 1st auxiliary request corresponded to claim 1 of the main request to which the following was added "wherein the thermally conductive plastic material consists of 30-80 wt.% of a thermoplastic polymer, 20-70 wt.% of expanded graphite or a mixture of expanded graphite and other thermally conductive components, and 0-50wt. % of additives, wherein the weight percentages (wt.%) are relative to the total weight of the thermally conductive plastic material".

Claim 2 of the 1st auxiliary request read:

"2. Heatsink for an electrical or electronic device according to claim 1, wherein the plastic body made of a thermally conductive plastic material has an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K".

Claim 1 of the 2nd auxiliary request read:

"1. Heatsink for an electrical or electronic device comprising a plastic body made of a thermally conductive plastic material having an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K comprising an expanded graphite in an amount of at least 20 wt.%, relative to the total weight of the thermally conductive plastic material, heatsink comprising a metal coating layer covering at least part of the surface of the plastic body or comprising a coating layer consisting of an electrically insulating plastic material, covering at least part of the surface of the plastic body, wherein the thermally conductive plastic material consists of 30-80 wt.% of a thermoplastic polymer, 20-70 wt.% of expanded graphite or a mixture of expanded graphite and other thermally conductive components, and 0-50wt.% of additives, wherein the weight percentages (wt.%) are relative to the total weight of the thermally conductive plastic material".

VIII. The parties were summoned to oral proceedings. Issues to be discussed at the oral proceedings were set out by the Board in a communication dated 25 May 2020.

IX. The opponent made further written submissions with letters of 14 July 2020 and 27 August 2020. With the former, a further document was submitted.

X. The patent proprietor made further written submissions with letters of 31 July 2020 and 6 August 2020. The patent proprietor withdrew their request for oral proceedings in their letter of 31 July 2020.

XI. With letter of 20 October 2020 the opponent stated that the request for oral proceedings did not apply in respect of the request for reimbursement of the appeal fee. Consequently the decision on this matter could be taken on the basis of the state of the file.

XII. The arguments of the patent proprietor, insofar as relevant to the present decision, may be summarised as follows:

Admittance of the main request, the 1st and 2nd auxiliary request requests into the proceedings

- The request for non admittance of the main request, the 1st and 2nd auxiliary request requests into the proceedings was first made in appeal with the letter of the opponent dated 14 July 2020. That request was part of a set of additional requests and arguments that raised new issues and fresh attacks that should not be admitted into the proceedings as non-conforming to the provisions of Articles 12(4), 13(1) and 13(3) RPBA 2007.

Amendments - Main request

- The amendment of claim 2 of the main request, which made claim 2 dependent on claim 1, did not modify the conclusion of the opposition division reached in their contested decision that the main request fulfilled the requirements of Article 123(2) EPC.

- The skilled person was not presented with information that was not directly and unambiguously derivable from the whole content of the application as filed even when account was taken of matter which was implicit to a person skilled in the art using common general knowledge. More specifically the basis for claim 2 of the main request was found on page 1, lines 3-4, page 2, lines 14-17, page 3, lines 31-34, page 4, lines 16-19, page 5, lines 20-22 and original claim 8. In those references to the application as filed, the combination of any and all features of the claim 2 of the main request were disclosed. Furthermore, the application as originally filed in its inventive example I provided a basis for the heatsink claimed in the claim 2 of the main request.

- The main request thus met the requirements of Article 123(2) EPC.

Amendments of claim 2 of the 1st auxiliary request and of claim 1 of the 2nd auxiliary request

- Claim 2 of the 1st auxiliary request corresponded to claim 1 of the 2nd auxiliary request so that these claims had the same basis in the application as filed. The basis was found in the original claims 1, 3, 4, 7 and on page 7, lines 12-19 of the application as filed.

- Additionally a basis was found in the application as filed on page 1, lines 3-4, page 2, lines 29-31, page 8, lines 14-24 (limited to the preferred embodiment as disclosed on page 10, lines 9-16 and to certain thermally conductive components as disclosed on page 7, lines 12-15 and lines 17-19),

page 8, lines 25-26, page 9, lines 13-16, page 4, lines 16-19 and on page 3, lines 31-34.

- Furthermore, the application as originally filed in its inventive example I provided a basis for the heatsink claimed in the claim 1 of the 2nd auxiliary request.

- Claim 2 of the 1st auxiliary request and claim 1 of the 2nd auxiliary request therefore found a basis in the application as filed.

XIII. The arguments of the opponent, insofar as relevant to the present decision, may be summarised as follows:

Admittance of the main request, the 1st and 2nd auxiliary requests into the proceedings

- A basis in the original application for each of these requests had not been provided in the grounds of appeal and they had therefore not been sufficiently substantiated. These requests should therefore not be admitted into the appeal proceedings.

Amendments - Main request

- There was no basis for the introduction of the reference to the thermal conductivity from claim 2 in combination with the features of claim 1. In particular, the modification of the wording of claim 2 so that the plastic material it referred to was the same as that of claim 1 found no basis. The requirements of Article 123(2) EPC were not met for claim 2 of the main request.

Amendments - claim 2 of the 1st auxiliary request and claim 1 of the 2nd auxiliary request

- Claim 2 of the application as filed did not depend on claim 1. The features relating to a heatsink for an electrical or electronic device comprising a plastic body made of a thermally conductive plastic material comprising an expanded graphite in an amount of at least 20 wt.-% were disclosed on page 2, lines 14-17 of the application as filed, however only for one possible form of heatsink ("in one embodiment"). Another heatsink was also disclosed but without expanded graphite or with less expanded graphite with the mandatory characteristic of having a thermal conductivity of at least 7.5 W/(mK) on page 2, lines 26-31. As a specific embodiment of these variants it was disclosed on page 3, line 30 to page 4, line 23, that a metal coating layer or an electrically insulating plastic material could be present. There was thus no basis in these passages of the application as filed for the combination of features defining claim 2 of the 1st auxiliary request.

- Furthermore, claim 2 of the 1st auxiliary request was based on a selection from alternative embodiments disclosed starting on page 7, line 12 where thermosets and thermoplastics were mentioned. The disclosure of a further embodiment relating to the amounts of the components of a thermoplastic composition was to be found at page 10, lines 9-13. These amounts were not originally disclosed in the context of any specific thermally conductive component.

- There was no basis for claim 2 of the 1st auxiliary request or claim 1 of the 2nd auxiliary request in the application as filed.

Reimbursement of the appeal fee

- Auxiliary request 4, which was filed during the oral proceedings before the opposition division, should not have been admitted into the proceedings since it was identical to auxiliary request 3 from 18 April 2017 which had been withdrawn from the proceedings by the patent proprietor. That admission was contrary to an efficient conduct of the proceedings and the inefficient conduct of the proceedings by the opposition division constituted a substantial procedural violation that justified reimbursement of the appeal fee.

XIV. The patent proprietor requested that the decision of the opposition division be set aside and that the patent be maintained on the basis of the main request or on the basis of the 1st or 2nd auxiliary request filed with the statement setting out the grounds of appeal and their respective amended descriptions filed with letter of 31 July 2020. The patent proprietor further requested that any and all of the parts of the letter of the opponent filed on 14 July 2020 that were not directly and unambiguously in response to specific points addressed in the preliminary opinion of the Board without extending the scope of the discussion as determined by the statement of grounds of appeal of the opponent and without raising new issues, and which did not form part of the statement of grounds of appeal of the opponent, be not admitted to the proceedings as non-conforming to the provisions of Articles 12(4), 13(1) and 13(3) RPBA; and that any fresh "attacks" for

alleged lack of novelty/inventive step, any and all enclosures of the letter of the opponent filed on 14 July 2020, and alleged prima facie prior art, and also any discussion/arguments associated with them, be not admitted to the proceedings as non-conforming to the provisions of Articles 12(4), 13(1) and 13(3) RPBA.

XV. The opponent requested that the decision of the opposition division be set aside and that the patent be revoked. The opponent also requested reimbursement of the appeal fee and that the main request, the 1st auxiliary request and the 2nd auxiliary request not be admitted into the proceedings. The opponent furthermore requested that the decision about the specific request for reimbursement of the appeal fee be decided on the state of the file.

Reasons for the Decision

1. Admittance of the main request, the 1st and 2nd auxiliary request requests into the proceedings

1.1 The main request, the 1st and 2nd auxiliary requests were submitted with the statement of grounds of appeal of the patent proprietor. The admittance of these requests into the proceedings was not challenged by the opponent in their reply to the statement of grounds of appeal and it was not an issue that was raised by the Board in their preliminary opinion on the case in the communication of 25 May 2020 either. It is only later, with their letter of 14 July 2020 that the opponent requested the non-admittance of the main request, the 1st and 2nd auxiliary requests (page 1 of the letter of 14 July 2020 of the opponent). That letter of the opponent contains a section II in which it is submitted that the main request, the 1st and 2nd auxiliary

requests submitted in appeal and in particular the basis for these requests in the application as filed had not been sufficiently substantiated in the statement of grounds of appeal.

1.2 The case law relevant to the admittance of requests in appeal proceedings relied upon by the opponent in that regard (Case Law of the Boards of Appeal, 9th Edition, July 2019, V.A.4.12.5) relates to the situation where auxiliary requests were filed during appeal proceedings without providing any substantiation. Under such circumstances the requests may be considered as not having been validly filed. This case law is however only applicable to new requests that were filed for the first time in appeal. The 2nd auxiliary request on file in appeal was however already admitted by the opposition division as the 4th auxiliary request and the decision under appeal is based on it. There is therefore no legal basis for excluding that request from the appeal proceedings.

1.3 With regard to the main request and the 1st auxiliary request, the statement of grounds of appeal of the patent proprietor addresses the basis for the introduction of a dependency in claim 2 of the main request by reference to the reasoning of the opposition division (first paragraph on page 3 of the statement of grounds of appeal). The argument provided in that passage is brief but it does constitute a substantiation nonetheless. Since the exact same amendment was performed in claim 2 of the 1st auxiliary request, which request otherwise corresponds to the 1st auxiliary request of the contested decision, it is apparent that the argument laid out for the main request in the statement of grounds of appeal equally shall apply to the 1st auxiliary request. Therefore,

the Board finds that the main request, the 1st and 2nd auxiliary request cannot be considered as not having been validly filed with the statement of grounds of appeal of the patent proprietor on the grounds that the basis for these requests was not sufficiently substantiated. There is thus no reason not to admit these requests into the proceedings under Article 12(4) RPBA 2007.

2. Amendments - Main request

2.1 For the assessment of Article 123(2) EPC, the question to be answered is whether or not the subject-matter of an amended claim extends beyond the content of the application as filed, i.e. whether after the amendment the skilled person is presented with new technical information (see G 2/10, OJ EPO 2012, 376, point 4.5.1 of the Reasons and Case Law of the Boards of Appeal of the EPO, 9th edition, 2019, II.E.1 and 1.2.1). In the case of multiple amendments being made, as is the case here, the question has to be posed whether the specific combination of features now being defined emerges from the application as filed, whereby the description is not to be viewed as a reservoir from which features pertaining to separate embodiments can be freely combined in order to artificially create a certain embodiment (Case Law, supra, II.E.1.6.1).

2.2 The heatsink for electrical or electronic devices according to operative claim 2, which depends on operative claim 1, is defined by the following combination of features:

(a) a plastic body made of a thermally conductive plastic material comprising an expanded graphite in an amount of at least 20 wt.%, relative to the

total weight of the thermally conductive plastic material,

(b)

(i) a metal coating layer covering at least part of the surface of the plastic body

or

(ii) a coating layer, consisting of an electrically insulating plastic material, covering at least part of the surface of the plastic body,

(c) a plastic body made of a thermally conductive plastic material having an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K.

2.3 With regard to the combination of features (a), (b) and (c) in operative claim 2, the appellant invoked page 1, lines 3-4; page 2, lines 14-17; page 3, lines 31-34; page 4, lines 16-19; page 5, lines 20-22 and original claim 8 as well as example I of the application as filed. It is however apparent that none of these passages provides a basis for the combination of features (a) to (c) defined above.

2.3.1 The passage on page 1, lines 3-4 of the application as filed merely indicates that the application relates to a heatsink for an electrical or electronic device, to electrical or electronic devices comprising a heat source and a heatsink as well as to processes for producing the heatsink. There is in that passage no reference to any of the features (a) to (c) that define operative claim 2. There is therefore no disclosure of that specific combination of features in the passage on

page 1, lines 3-4 of the application as filed.

2.3.2 The passage on page 2, lines 14-17 concerns a specific embodiment ("in one embodiment") only pertaining to feature (a) without mentioning its combination with features (b) and (c). There is in that passage no indication that feature (a), which defines the plastic body of the heatsink, can be combined with the specific coating layers of features (b)(i) or (b)(ii) and that the plastic body can have the thermal conductivity as defined in feature (c).

2.3.3 The passage on page 3, lines 31-34 cited by the patent proprietor concerns a specific embodiment of the application as filed (first embodiment) pertaining to a heatsink comprising a plastic body consisting of a thermally conductive plastic material and a coating layer consisting of an electrically insulating plastic material covering at least part of the surface of the plastic body. That embodiment corresponds to feature (b)(ii) as defined above. There is no disclosure in said passage of a heatsink comprising expanded graphite and there is no indication in said passage that the thermal conductivity of the plastic body would be in the range of at least 7.5 W/m.K with the result that the combination of features (a) to (c) cannot be seen as finding a basis in the cited passage on page 3 of the application as filed.

2.3.4 Further, the passage on page 4, lines 16-19 concerns a distinct embodiment ("in the second embodiment") in which the heatsink comprises a plastic body consisting of a thermally conductive plastic material and a coating layer covering at least part of the plastic body consisting of a metal corresponding to feature (b)(i). The heatsink of claim 1 of which (b)(i) is a

feature is not defined in said passage of page 4 since features (a) and (c) are not mentioned. For example, said passage does not provide a disclosure of a heatsink comprising expanded graphite. If the passage on page 4, lines 16-19 indicates that the metal coating layer enhances the overall thermal conductivity of the heatsink, there is no indication that that enhancement of the thermal conductivity would also apply to the plastic body according to operative claim 2 and that the thermal conductivity in that case would automatically be in the range of at least 7.5 W/m.K.

2.3.5 The passage on page 5, lines 20-22 concerns the plastic material in the heatsink according to the invention which is defined in that it may have a thermal conductivity varying over a large range, provided the in-plane thermal conductivity $\Lambda_{//}$ is at least 7.5 W/m.K. That passage concerns feature (c) but it does not disclose that feature in a heatsink additionally containing features (a) and (b). The passage on page 5, lines 20-22 is unspecific as far as the plastic material and the heatsink are concerned and does not provide a disclosure that a plastic body comprising expanded graphite in an amount of at least 20 wt.-% and the surface of which is at least partly covered with a metal coating layer or an electrically insulating plastic material, would have an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K. The passage on page 5, lines 20-22 therefore does not provide a basis for operative claim 2.

2.3.6 Claim 8 of the application as filed, also cited as a basis for claim 2 of the main request, concerns a process for making a heatsink for an electrical or electronic device comprising injection moulding of a thermally conductive plastic material thereby forming a

thermally conductive plastic body, followed by applying a coating layer on at least part of the plastic body, wherein the thermally conductive plastic material comprises an expanded graphite in an amount of at least 20 wt.-%, relative to the total weight of the thermally conductive plastic material and/or having an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K. Claim 8 as originally filed does not define the coating layer as the specific layer of feature (b)(i) or (b)(ii). In addition, the Board notes that claim 9 as originally filed, which depends on claim 8, discloses layers corresponding (b)(i) and (b)(ii). However, feature (b)(i), i.e. wherein a metal coating is present, in claim 9 is limited to electrically non-conductive plastic materials and feature (b)(ii), i.e. wherein the coating is an electrically insulating material in claim 9 is limited to electrically conductive plastic materials, both definitions being not part of operative claim 2. Neither claim 8 nor its dependent claim 9 of the application as filed can form the basis for claim 2 of the main request.

2.3.7 Example I which was also invoked by the patent proprietor as a basis for operative claim 2 discloses a heatsink for a LED device (first paragraph on page 13) having the shape of a cylindrical cup moulded with the material prepared from polyamide-46 and carbon pitch fibre (CPF), boron nitride (BN) and 30 wt.-% expanded graphite (EG) (Table 1) and having an in plane thermal conductivity $\Lambda_{//}$ of 13 W/m.K. The plastic body obtained from that material further comprises on the outer surface of the cup a thermoset polyester powder coating. The patent in suit therefore contains only one example that could be seen as being according to operative claim 2. That example however is very specific in that it involves an amount of expanded

graphite that is in the lower part of the range defined in operative claim 1 from which operative claim 2 depends. Example I is also specific in that it contains boron nitride and carbon pitch fibre the selection of which is stated on page 8, lines 11-13 to depend on the further - unspecified - requirements for the heatsink and the amounts of which depend on the type of thermally conductive component and the level of heat conductivity required. None of these components and requirements are defined in operative claim 2. The Board therefore finds that the specific example I in the application as filed cannot be generalized and provide a basis for the broader definitions of components and amounts of operative claim 2.

2.4 There is finally no indication in the application as filed that would show that the individual specific passages cited by the patent proprietor that correspond to features partly defining the claimed subject matter could be seen as being disclosed in combination with one another and correspond to the subject matter of operative claim 2.

2.5 The Board thus finds that the combination of features (a), (b) and (c) as defined above and defining operative claim 2 does not find a basis in the application as filed since that combination does not emerge directly and unambiguously therefrom. The Board concludes that claim 2 of the main request does not meet the requirements of Article 123(2) EPC.

3. Amendments - claim 2 of the 1st auxiliary request and claim 1 of the 2nd auxiliary request

3.1 The Board had indicated in its preliminary opinion that the matters raised for the main request also applied to

the auxiliary requests inasmuch as they concern the same features. Indeed claim 2 of the 1st auxiliary request, by way of its dependency from claim 1, contains the same combination of features (a), (b) and (c) as considered above for the discussion of the main request. Claim 2 employs a more limited definition of the thermally conductive plastic material which is specified as consisting of 30-80 wt.% of a thermoplastic polymer, 20-70 wt.% of expanded graphite or a mixture of expanded graphite and other thermally conductive components, and 0-50 wt.-% of additives. The question to be answered was thus whether the limitation of the definition of the thermally conductive plastic material characterizing claim 2 of the 1st auxiliary request was disclosed in combination with the features (a), (b) and (c). Since claim 1 of the 2nd auxiliary request is identical to claim 2 of the 1st auxiliary request, the reasoning concerning the basis of claim 2 of the 1st auxiliary request is the same as that for the basis of claim 1 of the 2nd auxiliary request.

3.2 In that regard, the patent proprietor invoked the same passages in the application as filed already considered above in the discussion of the basis for the main request with additional passages of the application as filed on page 1, lines 3-4, page 2, lines 29-31; page 8, lines 14-24 (limited to the preferred embodiment as disclosed on page 10, lines 9-16) and on page 7, lines 12-15, and 17-19; page 8, lines 25-26 ; page 9, lines 13-16; page 4 lines 16-19 and page 3, lines 31-34

3.2.1 With regard to the passage on page 1, lines 3-4; page 3, lines 31-34 and page 4, lines 16-19 the same reasoning as that given above in points 2.3.1-2.3.4 apply equally to claim 2 of the 1st auxiliary request. Also, the passage on page 2, lines 29-31 concerns the

in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K of the second embodiment of the application as filed. That passage is not relevant to the specific compositions of thermally conductive plastic material as now defined in claim 1 of the 1st auxiliary request. That passage is therefore not seen as providing a basis for the amended 1st auxiliary request.

3.2.2 The passage on page 7, lines 12-15 and lines 17-19 discloses that the thermally conductive component in the thermally conductive plastic composition for the heatsink can in principle be any material that can be dispersed in the polymer and that improves the thermal conductivity of the plastic composition. That passage could be seen as being relevant to show that the specific composition of example I can be generalized to other thermally conductive components. However, as discussed above under point 2.3.7, any given thermally conductive components, such as boron nitride or carbon pitch fibre used in example I, are to be selected on the basis of additional requirements for the heatsink and their amounts also depend on the type of thermally conductive component and the level of heat conductivity required, as disclosed on page 8, lines 11-13 of the application as filed. These requirements are not disclosed in example I nor set out in the claims of the 1st and 2nd auxiliary requests such that it cannot be inferred from example I that the composition disclosed therein can be generalized to the extent that it can provide a basis for claim 2 of the 1st auxiliary request or claim 1 of the 2nd auxiliary request.

3.2.3 The passages on page 8, lines 14-24 and lines 25-26 read in combination with that on page 9, lines 13-16 define a thermally conductive plastic material that comprise expanded graphite, but that composition is

nevertheless different from that limiting claims 1 of the 1st and 2nd auxiliary requests since it is not said to comprise up to 50 wt.-% additives. Furthermore, the Board sees no justification for the specific combination of the passage on page 8, lines 14-24 with that on page 10, lines 9-16 without also considering any of the other preferred features disclosed in the application as filed such as the preferred use of a graphite filler (page 8, line 32) preferred amount of expanded graphite (page 9, lines 11-12) or the presence of non-conductive fillers (page 10, lines 4-8) to name only three of them. Also, there is in those passages no mention of feature (b) relating to the presence of a coating layer being one of the alternatives (i) or (ii).

3.2.4 The passage on page 10, lines 9-16 concerns a preferred embodiment of the application as filed and discloses a thermally conductive plastic material in the plastic body of a heatsink consisting of 30-80 wt.-% of a thermoplastic polymer, 20-70 wt.-% of the thermally conductive component, and 0-50 wt.-% additives, but that composition is not disclosed to contain any of the features (a), (b) and (c) defined above because the embodiment of page 10 does not specifically contain expanded graphite nor has an in-plane thermal conductivity $\Lambda_{//}$ of at least 7.5 W/m.K, and the heatsink is not one containing a coating layer according to feature (b).

3.2.5 As discussed in 2.3.7 example I cannot provide a basis for the claimed combination of features of operative claim 2 of the main request. The conclusions reached apply mutatis mutandis to claim 2 of the 1st auxiliary request since the same combination of features defines its subject matter. That equally applies to the basis

of claim 1 of the 2nd auxiliary request which contains the same subject matter as claim 2 of the 1st auxiliary request.

3.3 The Board thus finds that the combination of features (a), (b), (c) does not find a basis in combination with the limitation of the thermally conductive plastic material according to claim 2 of the 1st auxiliary request or claim 1 of the 2nd auxiliary request in the application as filed since that combination does not emerge directly and unambiguously from the application as filed. The Board concludes that neither claim 2 of the 1st auxiliary request nor claim 1 of the 2nd auxiliary request meets the requirements of Article 123(2) EPC.

4. Request for reimbursement of the appeal fee

4.1 The opponent requested in their statement setting out the grounds of appeal (section A.6., page 8) reimbursement of the appeal fee on the ground of deficiencies in the conduct of the oral proceedings and because the opponent had allegedly been disadvantaged during the oral proceedings.

4.2 The opponent states in points A.1.a and A.1.b of the statement of grounds of appeal of the opponent that a number of auxiliary requests considered at the beginning of the oral proceedings were withdrawn and replaced by other auxiliary requests filed during the oral proceedings, allegedly creating confusion as to the status and numbering of the auxiliary request. It is recalled at this juncture that the admission into opposition proceedings of late submissions, such as new sets of claims during the oral proceedings, is at the discretion of the opposition division (Case Law of the

Boards of Appeal, 9th Edition, July 2019, IV.C.4). The Board does not see that the situation as reported by the opponent can be construed as representing a deficiency in the conduct of the oral proceedings, for example an incorrect use of the discretionary powers, which resulted directly in any disadvantage to the opponent.

4.3 According to Rule 103(1)(a) EPC the reimbursement of the appeal fee shall be ordered where the board of appeal deems an appeal to be allowable, if such reimbursement is equitable by reason of a substantial procedural violation.

4.4 The opponent however did not identify in appeal a deficiency in the conduct of the oral proceedings by the opposition division which could be seen as a substantial procedural violation nor can the Board identify from the account provided by the opponent a deficiency that is so severe that it would constitute such a procedural violation.

4.5 On the basis of the account of the oral proceedings and the arguments of the opponent, the Board finds that there is no basis for a reimbursement of the appeal fee under Rule 103(1)(a) EPC.

5. As the patent proprietor has withdrawn its request for oral proceedings and the opponent only maintained its request for oral proceedings in the event the Board would not set aside the decision under appeal and revoke the patent, the Board is in a position to decide on the appeal without holding oral proceedings.

Order

For these reasons it is decided that:

1. The decision of the opposition division is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

B. ter Heijden M. C. Gordon

Decision electronically authenticated