Internal distribution code:

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

Datasheet for the decision of 4 February 2020

Case Number: T 1173/17 - 3.3.05

Application Number: 06844299.5

Publication Number: 1957185

IPC: B01D53/94, F01N3/08, F01N3/10, F01N3/022, F01N3/035

Language of the proceedings: EN

Title of invention:
DIESEL PARTICULATE FILTERS HAVING ULTRA-THIN CATALYZED OXIDATION COATINGS

Patent Proprietor:
BASF Corporation

Opponent:
Johnson Matthey Public Limited Company

Headword:
Diesel particulate filter/BASF

Relevant legal provisions:
EPC Art. 54(1), 84, 123(2)
EPC R. 139
RPBA 2020 Art. 13(1), 25(3)
RPBA Art. 13(3)

Keyword:
Novelty - main request (no) - auxiliary request 1 (no)
Amendments - auxiliary requests 2, 5, 8, 11-14 - allowable (no)
Clarity - auxiliary requests 3, 4, 6, 7, 9, 10 (no)
Late-filed auxiliary request - admitted (no)

Decisions cited:
T 0607/93, T 0107/14, T 0725/08, G 0003/14, T 1597/16

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1173/17 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 4 February 2020

Appellant: (Opponent)	Johnson Matthey Public Limited Company 5th Floor 25 Farringdon Street London EC4A 4AB (GB)
Representative:	Nunn, Andrew Dominic Johnson Matthey PLC Gate 20 Orchard Road Royston, Hertfordshire SG8 5HE (GB)
Respondent: (Patent Proprietor)	BASF Corporation 100 Campus Drive Florham Park, NJ 07932 (US)
Representative:	Altmann Stößel Dick Patentanwälte PartG mbB Isartorplatz 1 80331 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 20 March 2017 concerning maintenance of the European Patent No. 1957185 in amended form.**

Composition of the Board:

Chairman	E. Bendl
Members:	S. Besselmann
	S. Fernández de Córdoba

Summary of Facts and Submissions

I. The present appeal lies from the interlocutory decision of the opposition division to maintain European patent No. 1957185 in amended form according to the patent proprietor's main request. The patent in suit concerns diesel particulate filters.

II. In the decision under appeal, the following document is referred to, *inter alia*:

D1 EP 1 398 081 A1 (TOYOTA MOTOR CO LTD [JP]) 17 March 2004

III. Claim 1 of the main request on which the appealed decision is based reads as follows:

"*An emission treatment system for a diesel engine comprising a soot filter, said soot filter having dispersed thereon more than one washcoat composition comprising sub-micron particles, wherein said soot filter is a wall-flow monolith coated contiguously with at least two layers of said sub-micron washcoat compositions.*"

IV. With its grounds of appeal, the opponent (appellant) raised, *inter alia*, an objection of lack of novelty in view of D1 (Articles 100(a) and 54(1),(2) EPC).

V. The patent proprietor (respondent) maintained the request upheld by the opposition division as its main request and filed 14 auxiliary requests with its reply to the statement of grounds of appeal (13 December 2017) and an additional auxiliary request

during the oral proceedings (to be inserted before the fourth auxiliary request filed with the reply).

VI. The differences in claim 1 of each of these auxiliary requests in comparison to claim 1 of the relevant higher-ranking request are outlined in the following.

Auxiliary request 1 (of 13 December 2017):
In comparison to the main request, the term "honeycomb" in inserted before "wall-flow monolith".

Auxiliary request 2 (of 13 December 2017):
In comparison to auxiliary request 1, the expression "washcoat composition comprising" is replaced by "washcoat composition consisting of".

Auxiliary request 3 (of 13 December 2017):
In comparison to the main request, the expression "wherein the washcoat layers contain different sub-micron particles" is added at the end of the claim.

Auxiliary request 4 filed during oral proceedings:
In comparison to the main request, the expression "of co-formed sub-micron ceria-zirconia composite and of one or more base metal oxides selected from the group consisting of alumina oxide, zirconia oxide, titanium oxide, magnesium oxide, hafnium oxide, lanthanum oxide, yttrium oxide, silicon oxide, mixtures thereof, and any of said base metal oxides containing a platinum group metal" is inserted after "sub-micron particles".

Auxiliary request 4 (of 13 December 2017):
Claim 1 combines the amendments of auxiliary requests 1 and 3, the term "honeycomb" being inserted before "wall-flow monolith" and the expression "wherein the

washcoat layers contain different sub-micron particles" being added at the end of the claim.

Auxiliary request 5 (of 13 December 2017):
In comparison to auxiliary request 4 of 13 December 2017, the expression "washcoat composition comprising" is replaced by "washcoat composition consisting of", as in auxiliary request 2.

Auxiliary request 6 (of 13 December 2017):
In comparison to the main request, the expression "wherein the washcoat layers contain different sub-micron particles" is added at the end of the claim, as in auxiliary request 3, and in addition the expression "of one or more base metal oxides selected from the group consisting of alumina oxide, zirconia oxide, titanium oxide, magnesium oxide, hafnium oxide, lanthanum oxide, yttrium oxide, silicon oxide, mixtures thereof, and any of said base metal oxides containing a platinum group metal" is inserted after "sub-micron particles".

Auxiliary request 7 (of 13 December 2017):
In comparison to auxiliary request 6 of 13 December 2017, claim 1 is further amended in that the term "honeycomb" is inserted before "wall-flow monolith".

Auxiliary request 8 (of 13 December 2017):
In comparison to auxiliary request 7 of 13 December 2017, claim 1 is further amended in that the expression "washcoat composition comprising" is replaced by "washcoat composition consisting of", as in auxiliary request 2.

Auxiliary request 9 (of 13 December 2017):
Claim 1 corresponds to claim 1 of the fourth auxiliary request filed during oral proceedings, further amended in that the expression "wherein the washcoat layers contain different sub-micron particles" is added at the end of the claim, as in claim 1 of auxiliary request 3 of 13 December 2017.

Auxiliary request 10 (of 13 December 2017):
Claim 1 corresponds to claim 1 of auxiliary request 9 of 13 December 2017, further amended in that the term "honeycomb" is inserted before "wall-flow monolith".

Auxiliary request 11 (of 13 December 2017):
Claim 1 corresponds to claim 1 of auxiliary request 10 of 13 December 2017, further amended in that the expression "washcoat composition comprising" is replaced by "washcoat composition consisting of", as in auxiliary request 2.

Auxiliary request 12 (of 13 December 2017):
In comparison to auxiliary request 9 of 13 December 2017, claim 1 is further amended to read as follows:

"A*n emission treatment system for a diesel engine comprising a soot filter, said soot filter having dispersed thereon more than one washcoat composition comprising sub-micron particles of co-formed sub-micron ceria-zirconia composite and of one or more base metal oxides selected from the group consisting of alumina oxide, zirconia oxide, titanium oxide, magnesium oxide, hafnium oxide, lanthanum oxide, yttrium oxide, silicon oxide, mixtures thereof, and any of said base metal oxides containing a platinum group metal, wherein said soot filter is a wall-flow monolith coated contiguously*

with at least two layers of said sub-micron washcoat compositions, wherein the washcoat layers contain different sub-micron particles, and wherein the co-formed sub-micron ceria-zirconia composite and the one or more base metal oxides are formed into discrete layers."

Auxiliary request 13 (of 13 December 2017):
In comparison to auxiliary request 12 of 13 December 2017, claim 1 is further amended in that the term "honeycomb" is inserted before "wall-flow monolith".

Auxiliary request 14 (of 13 December 2017):
In comparison to auxiliary request 13 of 13 December 2017, claim 1 is further amended in that the expression "washcoat composition comprising" is replaced by "washcoat composition consisting of", as in auxiliary request 2.

VII. The appellant's arguments where relevant to the present decision may be summarised as follows:

The request to correct an alleged error in Example 3 should not be allowed.

The claims should not be interpreted narrowly in view of the description in accordance with T 607/93. The subject-matter of claim 1 of the main request was not novel in view of Document D1.

Auxiliary request 4 (filed during the oral proceedings) was not *prima facie* allowable but rather constituted a starting point for further discussion and amendments. This request should not be admitted into the

proceedings because procedural economy would not be served.

The other auxiliary requests 1-14 (of 13 December 2017) had deficiencies under Article 84 EPC or Article 123(2) EPC.

VIII. The respondent's arguments where relevant to the present decision may be summarised as follows:

The skilled person would have recognised immediately that there was an error in Example 3, the true crystallite size of the Ce/Zr composite being 0.5 micrometres as in Examples 1 and 2.

Main request

Claim 1 had to be construed as excluding particles larger than 1 µm from the "sub-micron washcoat compositions", as was also clear from the description.

The subject-matter of claim 1 was novel over D1 because D1 neither disclosed two contiguous layers nor a second sub-micron washcoat composition.

Auxiliary request 4 (filed during the oral proceedings)

This request was derived from auxiliary request 9 by merely deleting an objected to feature, addressing this objection. It should therefore be admitted into the proceedings.

Auxiliary requests 1-14 (of 13 December 2017)

The requests citing more than one washcoat composition "consisting of" sub-micron particles comply with the

requirements of Article 123(2) EPC. It was derivable from the original description and the examples that the presence of micron-size particles in the washcoat compositions was clearly not envisaged. Hence, it was directly and unambiguously derivable from the original application that the washcoat compositions consisted of sub-micron particles. This conclusion was also supported by T 107/14 and T 725/08.

In the requests concerned, the feature "the washcoat layers contain different sub-micron particles" did not introduce a lack of clarity. This feature might be broad, but it would have been clear to the skilled person.

Claim 1 of auxiliary requests 12-14 included the features of original claims 1, 3, 5, 7 and 11 and the passages on page 10, lines 14-15, and page 11, lines 9-12. It was derivable from the original application that these features pertained to the same embodiment, as was more specifically disclosed in the latter passage. The claim therefore complied with the requirements of Article 123(2) EPC.

IX. The appellant (opponent) requested that the decision under appeal be set aside and that the European patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed and, alternatively, that the patent be maintained based on one of auxiliary requests 1-3 (as filed with the reply to the grounds of appeal), the fourth auxiliary request (as filed during oral proceedings) or auxiliary requests 4-14 as filed with the reply to the grounds of appeal.

Reasons for the Decision

1. Request for a correction in the description

1.1 In Example 3 of the patent in suit, a Ce/Zr composite "having an average crystallite size around 5 micrometers, commercially available" is used. The respondent stated that the average crystallite size of 5 micrometres was incorrect and requested that this figure be corrected to 0.5 micrometres.

1.2 The board sees no basis for the requested correction. While other examples (Examples 1, 2, 5, 7) recite an average crystallite size "less than 0.5 micrometers", there is no indication that the same commercial Ce/Zr composite is also used in Example 3. In contrast to these other examples, Example 3 does not designate the Ce/Zr composite as "sub-micron" Ce/Zr composite.

1.3 Hence, there is no basis to conclude that the skilled person would have understood that nothing else but an average crystallite size of around 0.5 micrometres would have been meant in Example 3. The requested correction is therefore not in conformity with the requirements of Rule 139 EPC and Article 123(2) EPC.

Main request

2. Claim interpretation

2.1 Claim 1 refers to a washcoat composition comprising sub-micron particles. While it was common ground

between the parties that this required the presence of particles smaller than 1 µm, the question arose whether larger particles could additionally be present.

2.2 The respondent was of the opinion that the wording of claim 1 as a whole had to be construed as excluding particles larger than 1 µm from the indicated washcoat compositions, considering that they were referred to as "sub-micron washcoat compositions".

2.3 In its view, this was also derivable from the description of the patent in suit, which consistently contrasted the claimed sub-micron washcoat compositions with larger conventional particles (paragraphs [0030]-[0033]), teaching that such larger micron-sized particles were unsuitable. For instance, the description explained that micron-sized particles tended to deposit near the walls or within dead-end channels within the wall structure (paragraph [0032], last sentence) and that the intended type of washcoat layering was not possible using micron-sized particles (paragraph [0033] third sentence).

2.4 However, the board finds that the expression "...more than one washcoat composition comprising sub-micron particles" [emphasis added] is clear in that it allows the presence of other types of particles, including larger particles. This meaning is not altered by referring to this washcoat composition as "said sub-micron washcoat compositions".

2.5 Nor should the claim be construed more narrowly in view of the description, in line with T 607/93 (Reasons 2.2) cited by the appellant. Even if the description were to be taken into consideration when interpreting the present claim, it does not unambiguously describe the

sub-micron washcoat compositions as consisting of sub-micron particles, as set out under point 5. below.

2.6 The board therefore concludes that the claim merely requires the presence of sub-micron particles in the washcoat compositions but does not exclude particles larger than 1 µm from these compositions.

3. Novelty

3.1 Document D1 was cited against the novelty of claim 1.

3.2 D1 relates to a filter catalyst for purifying exhaust gases containing particulates, such as those emitted from diesel engines [0001], and hence an emission treatment system for a diesel engine comprising a soot filter.

D1 discloses, as the filter catalyst, a wall-flow monolith (a honeycomb structure with clogged cells, see paragraph [0016]). It is coated with a first catalyst support having an average particle diameter of 1 µm or less, and a second catalyst support having an average particle diameter of 1/20 to 1/2 of the average pore diameter of the filter cellular wall, this average pore diameter being 20 to 40 µm (see paragraphs [0016] and [0019]). The coating is done by washcoating (paragraph [0019]).

3.3 According to the respondent, the subject-matter of claim 1 differs from D1 because D1 neither discloses two contiguous layers nor a second sub-micron washcoat composition.

3.4 "*coated contiguously with at least two layers*"

3.4.1 According to the respondent, the second catalyst support disclosed in D1 did not form a layer because it was distributed only partly on the surface of the first catalytic layer, as was explicitly stated in paragraph [0035] (last sentence). In its opinion, the second catalyst support merely formed aggregates on the first catalyst support, as was also clear from, *inter alia*, paragraph [0016] (last sentence), paragraph [0033] (last two sentences) and Figure 1 of D1 (reference signs (2) and (3) representing the first and second catalyst support respectively).

3.4.2 The appellant, by contrast, argued that the expression "coated contiguously with at least two layers" merely implied that the layers shared a common border but did not require any additional features of the layers.

3.4.3 The board shares this view of the appellant. Claim 1 sets out no further requirements of the layers. In particular, there is no requirement that the second layer be an even or continuous layer.

3.4.4 In the filter catalyst known from D1, the second catalyst support is desirably loaded on the layer formed by the first catalyst support (paragraph [0017] and claim 2 of D1). The corresponding manufacturing process involves forming a first catalytic layer by washcoating a slurry of the first catalyst support, followed by forming a second catalytic layer by washcoating a slurry of the second catalyst support (see paragraphs [0019] and [0035]). This sequence of steps is also shown in Example 1 of D1.

3.4.5 Even if, as set out by the respondent, the resulting layer is uneven and includes portions where the second catalyst support does not exist, it is a washcoat composition coated on a wall-flow monolith and may thus be regarded as a layer within the meaning of claim 1 at issue. D1 itself refers to it as "second catalytic layer" [emphasis added] (paragraphs [0019] and [0035] (middle) and paragraph [0051] relating to figure 1).

3.4.6 It also follows from the above that the second layer is formed on the first layer. The wall-flow monolith is consequently coated contiguously with the two layers.

3.5 "*two layers of said sub-micron washcoat compositions*"

3.5.1 It was common ground that the first catalyst support was "sub-micron".

3.5.2 The average particle diameter of the second catalyst support is defined to be 1/20 to 1/2 of the average pore diameter of the filter cellular wall, this average pore diameter being 20 to 40 µm, as indicated.

As explicitly mentioned in D1, this range of the average particle diameter of the second catalyst support corresponds to 1 to 20 µm (paragraph [0024]). An average particle diameter of 1 µm is therefore specifically disclosed.

3.5.3 This average particle diameter of 1 µm implies a particle diameter distribution containing smaller - and thus sub-micron - particles as part of it. Following the conclusion regarding claim interpretation (point 2.6), the second catalyst support may thus be regarded as a sub-micron washcoat composition within the meaning of claim 1 at issue.

3.6 Hence, D1 anticipates the feature that the wall-flow monolith is coated contiguously with a layer of the first catalyst support and a layer of the second catalyst support. In the context of this embodiment, D1 also discloses average particle diameters of the first and second catalyst supports which, according to a specifically mentioned alternative, include the presence of sub-micron particles.

3.7 The subject-matter of claim 1 therefore lacks novelty in view of D1 (Article 100(a) in conjunction with Article 54(1),(2) EPC).

Auxiliary request 1

4. Novelty

4.1 The filter catalyst disclosed in D1 is a honeycomb wall-flow monolith (col. 4, line 31; claim 1; figure 1).

4.2 The same conclusions reached in view of the main request consequently also apply to the first auxiliary request. The subject-matter of claim 1 lacks novelty in view of D1 (Article 100(a) in conjunction with Article 54(1),(2) EPC).

Auxiliary request 2

5. Amendments

5.1 It was common ground that the term "consisting of" in claim 1, defining "more than one washcoat composition

consisting of sub-micron particles", had no express basis in the original application.

5.2 However, the respondent was of the opinion that this feature was implicitly disclosed.

5.2.1 The arguments were similar to those supporting its interpretation of claim 1 of the main request as excluding particles larger than 1 µm from the indicated washcoat compositions (point 2.). Namely, the respondent stressed that the original application described the drawbacks of micron-sized particles, implying that these could not be present in the washcoat compositions used according to the invention, as derived from the disclosure in the original application (page 8, line 32, to page 9, line 2; page 9, lines 9-10, 15-24; page 10, lines 4-6, 11-14).

5.2.2 In its opinion, the examples also showed that the intended effect of lowering the pressure drop, or improving hydrocarbon (HC) conversion, could only be achieved if all washcoat components were sub-micron. In support of this, the respondent specifically relied on the comparison of samples E and G in Figure 3, and on the improved conversion of sample N in comparison to samples I to L. It concluded from these comparisons that the presence of micron-size particles in the washcoat compositions, such as the commercial material "Siralox" which was micron-size, was clearly not envisaged.

5.3 These arguments are not persuasive.

5.3.1 The relevant passages on pages 8-10, cited by the respondent, are to be seen in the context of washcoat compositions "comprising" the sub-micron particles

(page 8, line 32; page 9, line 27; page 10, line 7). Moreover, it is explicitly stated that the sub-micron particles can be "added to" a washcoat slurry (page 9, line 12), the other components of this washcoat slurry being undefined.

5.3.2 Nor do the examples lead to the conclusion that the washcoat compositions are to be free of micron-size particles.

5.3.3 According to Example 7 (preparation of sample G), specifically relied on by the respondent, "[t]he Pt/ alumina powder was then milled to break the agglomerates such that 90% of the particles were less than 5 micrometers". Example 10 (sample N) and also Examples 1, 3, 5, 8 and 9 are similar. In this case, there is no reason why the particles obtained by breaking the agglomerates should not be seen as particles of the washcoat composition. The claim makes no distinction between the base materials and agglomerates. Hence, for this reason alone the examples do not clearly disclose a washcoat composition consisting of sub-micron particles.

5.3.4 Moreover, the commercial material "Siralox" is used in several examples described in the original application (namely Examples 1, 3, 5 and 9). Its particle size is not specified. While it is indicated that the slurry used in Example 5 (sample E) is conventional (see Example 11), there is no such indication for the other examples using "Siralox". In contrast, Example 1 (sample A) is even found to be among the most active for carbon monoxide (CO) conversion (Example 12). Hence, even if the skilled person would have regarded "Siralox" as micron-size material, they would not have inferred from the examples as a whole that the absence

of this material is an essential or preferred feature of the originally described invention. They would even less have associated the absence of "Siralox" or micron-size particles with the claimed invention involving two layers. The only example involving two layers, namely Example 3 (retained as the invention example in the patent in suit), involves the use of "Siralox" and the Ce/Zr composite having an average crystallite size around 5 micrometres (see point 1. as to why this value cannot be corrected).

5.4 It also follows from the above that the present case differs from T 107/14 and T 725/08, cited by the respondent. T 107/14 (Reasons 1.1) related to a case where the original claims, albeit using the term "comprising", already disclosed a closed composition. T 725/08 (Reasons 5.5) concerned a case where it could be inferred from the content of the description as originally filed that other constituents were not clearly envisaged.

5.5 The subject-matter of claim 1, involving more than one washcoat composition consisting of sub-micron particles, is therefore not directly and unambiguously derivable from the original application, and the requirements of Article 123(2) EPC are not met.

Auxiliary request 3

6. Clarity

6.1 Claim 1 has been amended to define that "the washcoat layers contain different sub-micron particles".

6.2 This feature was not present in the granted claims. The claims may therefore be examined for compliance with Article 84 EPC in the present opposition appeal proceedings to the extent that this amendment introduces non-compliance with Article 84 EPC (G 3/14, Order).

6.3 In support of its argumentation on clarity, the respondent argued that the amendment was based on page 10, lines 14-17, of the original application (last sentence of paragraph [0033] of the patent) and consequently needed to be construed accordingly. It also held that a specific embodiment was disclosed on page 11, lines 9-12 (last sentence of paragraph [0036] of the patent).

6.4 However, the indicated passage in paragraph [0033] does not specify in which respect the sub-micron particles are to differ and in any case does not form part of the claim. It vaguely refers to "different sub-micron particles and/or sub-micron catalysed coating particles for different functions", suggesting that the difference may even only concern the intended function.

It is also not sufficient to identify a specific embodiment which may possibly be considered to fall within the claim because in the present case this does not allow establishing the scope of the claim as a whole.

6.5 It is not clear from the claim at issue if each layer is to contain several, different sub-micron particles, or if one layer is to contain sub-micron particles different from the sub-micron particles in the other layer. In addition, it is not known in which respect the sub-micron particles are to differ, if for instance

in size, composition, morphology, intended function or other.

6.6 The skilled person would therefore have been left in doubt as to which criterion to use to assess whether "the washcoat layers contain[ed] different sub-micron particles". This is not a question of the breadth of the claim but of the ambiguity of its wording, which is open to interpretation. This has the consequence that the scope of the claim may not be clearly determined.

6.7 Hence, the requirements of Article 84 EPC are not met.

Auxiliary request 4 (filed during the oral proceedings)

7. Admission into the appeal proceedings

7.1 The respondent explained that the claims of this new request corresponded to those of the ninth auxiliary request filed with the reply to the statement of grounds of appeal but with deletion of the last part of claim 1 which had been found to lack clarity ("wherein the washcoat layers contain different sub-micron particles").

7.2 Admitting this request, which was only filed during the oral proceedings, is at the discretion of the board (Article 25(3) RPBA 2020 in conjunction with Article 13(1) RPBA 2020 (see T 1597/17, Reasons 2) and Article 13(3) RPBA 2007).

The new request does not constitute a response to a new objection. An objection of lack of clarity with regard to the feature at issue had already been raised by the board in its preliminary opinion of 15 November 2019

and could therefore have been addressed in the reply to this opinion dated 3 January 2020.

When exercising this discretion, the board may also take into consideration whether the new request is clearly allowable.

7.3 On a *prima facie* basis, claim 1 does not comply with the requirements of Article 123(2) EPC. This claim combines the features of original claims 1, 3, 5, 7 and 11. However, each of original claims 3, 5, 7 and 11 individually only referred back to claim 1. The board is not convinced that the disclosure on page 11, lines 6-12, referred to by the respondent, is to be seen as a pointer towards the claimed combination of features because this disclosure relates to a specific embodiment in which the co-formed sub-micron ceria-zirconia composite and the base metal oxide are formed into discrete layers (one overlying the other) but does not disclose contiguous layers in general, having any arbitrary distribution of the claimed components among the layers.

7.4 This new request differs from the current main request in that the features of granted claims 3 and 5 have additionally been included in claim 1. On a *prima facie* basis, this amendment introduces a lack of clarity (Article 84 EPC) because it is not clear from the claim as a whole whether each of the "more than one washcoat composition" is to comprise each of the indicated groups of components.

7.5 The request is therefore not *prima facie* allowable and is consequently not admitted into the appeal proceedings.

Auxiliary request 4 (of 13 December 2017)

8. Clarity

8.1 Claim 1 merely differs from auxiliary request 3 in that it defines the wall-flow monolith to be a honeycomb wall-flow monolith. This difference is immaterial to the conclusion of lack of clarity reached in view of auxiliary request 3 (point 6.). Hence, the same conclusion applies.

Auxiliary request 5 (of 13 December 2017)

9. Amendments

9.1 Claim 1 contains the expression "washcoat composition consisting of". It consequently adds subject-matter which extends beyond the content of the original application, contrary to the requirements of Article 123(2) EPC for the reasons detailed in view of auxiliary request 2 (point 5.).

Auxiliary requests 6-7 (both of 13 December 2017)

10. Clarity

10.1 Claim 1 of both requests contains the same feature that "the washcoat layers contain different sub-micron particles" already present in claim 1 of auxiliary request 3. Hence, the same considerations apply (point 6.).

10.2 The sub-micron particles are additionally defined by reference to specific base metal oxides and base metal oxides containing a platinum group metal. This definition does not clarify the objected to expression. In particular, it remains unclear whether the sub-micron particles in one layer are to be different to those in the other layer. The nature of the difference also remains undefined.

10.3 The requirements of Article 84 EPC are therefore not fulfilled.

Auxiliary request 8 (of 13 December 2017)

11. Amendments

11.1 Claim 1 contains the expression "washcoat composition consisting of". It consequently adds subject-matter which extends beyond the content of the original application, contrary to the requirements of Article 123(2) EPC, for the reasons detailed in view of auxiliary request 2 (point 5.).

Auxiliary requests 9-10 (both of 13 December 2017)

12. Clarity

12.1 Claim 1 of both requests contains the same feature that "the washcoat layers contain different sub-micron particles" already present in claim 1 of auxiliary request 3. Hence, the same considerations apply (point 6.).

12.2 Claims 1 of auxiliary requests 9 and 10 define the presence of sub-micron particles selected among the specified group of base metal oxides and base metal oxides containing a platinum group metal (as in auxiliary requests 6-7, see point 10.), which are an essential component of the "more than one washcoat composition". They also define sub-micron particles of co-formed sub-micron ceria-zirconia composite as an additional essential component of the washcoat composition.

However, it is not clear from the claims if each washcoat composition, or each washcoat layer, is to comprise all essential components, or if for instance one essential component may be present in one layer and another essential component in the other layer. The nature of the difference also remains undefined.

12.3 The requirements of Article 84 EPC are therefore not fulfilled.

Auxiliary request 11 (of 13 December 2017)

13. Amendments

13.1 Claim 1 contains the expression "washcoat composition consisting of". It consequently adds subject-matter which extends beyond the content of the original application, contrary to the requirements of Article 123(2) EPC, for the reasons detailed in view of auxiliary request 2 (point 5.).

Auxiliary requests 12 and 13 (of 13 December 2017)

14. Amendments

14.1 Claim 1 of both requests combines the features of original claims 1, 3, 5, 7 and 11; a feature according to which the washcoat layers contain different sub-micron particles (page 10, lines 14-17, of the original application); and a feature according to which the sub-micron ceria-zirconia composite and the base metal oxide are formed into discrete layers (page 11, lines 9-12, of the original application). The additional indication "honeycomb" in auxiliary request 13 is irrelevant for the present considerations.

14.2 However, original claims 3 and 5 independently refer back to original claim 1 only. Hence, the original claims do not disclose more than one washcoat composition comprising the co-formed sub-micron ceria-zirconia composite in combination with sub-micron particles of one or more base metal oxides selected from the indicated group of specific oxides, mixtures of them and any of these base metal oxides containing a platinum group metal.

14.3 The indicated passage on page 11 specifically defines the presence of the co-formed sub-micron ceria-zirconia composite and the base metal oxide in discrete layers, for instance one overlying the other. However, this is not necessarily the same arrangement of the layers as in claim 1 at issue, which stipulates that the wall-flow monolith is coated contiguously with at least two layers. The claim implies that the layers need to share a common border but need not necessarily overlie one another. In this sense, claim 1 constitutes an

intermediate generalisation of the embodiment on page 11.

The claim additionally differs from this embodiment in that it includes the list of sub-micron particles of original claim 3, defining the base metal oxide.

14.4 The claim furthermore defines the feature that the washcoat layers contain different sub-micron particles, derived from page 10. This feature is presented as an additional requirement, not as being implemented by forming the co-formed sub-micron ceria-zirconia composite and the base metal oxide into discrete layers. Hence, the interpretation remains possible that each washcoat layer contains (several) different sub-micron particles, considering the comments on the clarity of this feature (see point 6.5). However, this feature on page 10 was not originally disclosed as pertaining to the same embodiment as forming discrete layers (page 11).

14.5 Furthermore, the feature relating to the presence of different sub-micron particles is merely one of two disclosed alternatives, namely "similar" versus "different" sub-micron particles (page 10, lines 14-17). Likewise, the feature defining discrete layers has been selected instead of another alternative according to which "the ceria composite and base metal oxide can be used in admixture" (page 11, lines 9-12).

14.6 It follows from the above that the subject-matter of claim 1 at issue does not derive directly and unambiguously from the original application. The requirements of Article 123(2) EPC are therefore not met.

Auxiliary request 14 (of 13 December 2017)

15. Amendments

15.1 Claim 1 merely differs from auxiliary request 13 in that it refers to more than one washcoat composition "consisting of", not "comprising", as in auxiliary request 2 (point 5.).

15.2 This difference is irrelevant for the conclusion reached in view of the other features of the claim (see point 14.). By contrast, this amendment by itself adds subject-matter which extends beyond the content of the application as filed for the reasons indicated in respect of auxiliary request 2 (point 5.)

15.3 The requirements of Article 123(2) EPC are therefore not met.

Order

For these reasons it is decided that:

- The decision under appeal is set aside.

- The patent is revoked.

The Registrar: The Chairman:

C. Vodz E. Bendl

Decision electronically authenticated