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**Datasheet for the decision  
of 11 December 2023**

**Case Number:** T 0127/22 - 3.2.07

**Application Number:** 10821392.7

**Publication Number:** 2483537

**IPC:** F01N3/10, F01N3/20, F01N3/28,  
F01N3/022, F01N3/035,  
B01D53/94, B01J23/44,  
B01J29/76, B01J37/02

**Language of the proceedings:** EN

**Title of invention:**  
FOUR-WAY DIESEL CATALYSTS AND METHODS OF USE

**Patent Proprietor:**  
BASF Corporation

**Opponent:**  
JOHNSON MATTHEY PUBLIC LIMITED COMPANY

**Headword:**

**Relevant legal provisions:**  
EPC Art. 83, 117(1) (e)  
RPBA 2020 Art. 12(6)

**Keyword:**

Late-filed facts - circumstances of appeal case justify  
admittance (yes)  
Sufficiency of disclosure - (no)

**Decisions cited:**

T 1076/21

**Catchword:**



**Beschwerdekammern**  
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Case Number: T 0127/22 - 3.2.07

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.07**  
**of 11 December 2023**

**Appellant:** BASF Corporation  
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**Representative:** Altmann Stöbel Dick Patentanwälte PartG mbB  
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**Representative:** Boulton Wade Tennant LLP  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 10 November  
2021 revoking European patent No. 2483537  
pursuant to Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman** G. Patton  
**Members:** B. Paul  
P. Guntz

## **Summary of Facts and Submissions**

- I. The patent proprietor (appellant) lodged an appeal in the prescribed form and within the prescribed time limit against the decision of the opposition division that the European Patent No. 2 483 537 be revoked.
- II. The opposition had been filed against the patent as a whole based on the grounds for opposition pursuant to Articles 100(a), 100(b) and 100(c) EPC.
- III. The opposition division found that the patent does not disclose the invention according to claim 1 of the Main Request, of the First Auxiliary Request, of the Second Auxiliary Request and of the Third Auxiliary Request in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, contrary to the requirements of Article 83 EPC.
- IV. In preparation for oral proceedings, scheduled at the parties' request, the board gave its preliminary assessment of the case by means of a communication pursuant to Article 15(1) RPBA 2020.
- V. The appellant submitted in reaction to the above mentioned communication a letter dated 3 November 2023 and a letter dated 4 December 2023.
- VI. The opponent (respondent) reacted, in writing, with a letter dated 20 November 2023.
- VII. The appellant requested that  
the decision under appeal be set aside and that the case be remitted to the opposition division for further prosecution on the basis of the Main

Request or on the basis of one of auxiliary requests 1 to 3. They were re-filed with the statement setting out the grounds.

They further requested, in the event that document D1 becomes relevant for assessing the sufficiency of disclosure, to refer two questions to the Enlarged Board of Appeal according to Article 112(1) (a) EPC as set out in the letter dated 3 November 2023, point IV on page 5.

- VIII. The respondent requested that the appeal be dismissed or, in the alternative, that the case be remitted to the opposition division and that the appellant's request for a referral of questions to the Enlarged Board of Appeal be dismissed.
- IX. Oral proceedings before the board took place by videoconference on 11 December 2023.
- X. At the conclusion of the proceedings the appellant and respondent confirmed their initial requests as final and the decision was announced. Further details of the proceedings can be found in the minutes thereof.
- XI. The lines of argument of the parties are dealt with in detail in the reasons for the decision.
- XII. Claim 1 of the main request reads as follows  
*"A catalyst article comprising a wall flow filter having a plurality of longitudinally extending passages formed by longitudinally extending porous walls (13) bounding and defining the passages (24,*

26) and an axial length extending between an inlet end (14) and an outlet end (16) wherein the passages comprise inlet passages (24) open at the inlet end (14) and closed at the outlet end (16), and outlet passages (26) being closed at the inlet end (14) and open at the outlet end (16), wherein said catalyst article is characterized by comprising  
an SCR catalyst composition (30) disposed within and permeating the porous walls (13),  
an oxidation catalyst (32) disposed on the walls (13) of the outlet passages (26) extending from the outlet end (16) and less than the axial length of the wall flow filter, and  
a gas impermeable zone starting at the outlet end (16) and extending partially along the axial length of the wall flow filter,  
wherein the term impermeable zone is defined to mean an area of the filter wall where the gas flow is lower by a factor of two and more,  
and wherein the SCR catalyst composition (30) extends the entire axial length of the filter."

XIII. Independent Claim 6 of the Main Request reads as follows:

"A method of treating a lean burn diesel exhaust gas stream including CO, hydrocarbons, NOx and soot comprising  
flowing exhaust from a diesel engine through a catalyst article comprising a wall flow filter having a plurality of longitudinally extending passages formed by longitudinally extending porous walls (13) bounding and defining the passages (24 and 26) and an axial length extending between an inlet end (14) and an outlet end (16) wherein the passages (24 and 26) comprise inlet passages (24)

*open at the inlet end (14) and closed at the outlet end (16), and outlet passages (26) being closed at the inlet end (14) and open at the outlet end (16),*  
*wherein said method is characterized by comprising the exhaust gas stream contacting an SCR catalyst composition (30) disposed within the porous walls (13) and*  
*subsequently contacting the exhaust gas stream with an oxidation catalyst (32) disposed on the walls (13) of the outlet passages (26) extending from the outlet end (16) and less than the axial length of the wall flow filter,*  
*wherein said catalyst article comprises a gas impermeable zone starting at the outlet end (16) and extending partially along the axial length of the wall flow filter,*  
*wherein the term impermeable zone is defined to mean an area of the filter wall where the gas flow is lower by a factor of two and more,*  
*and wherein the SCR catalyst composition (30) extends the entire axial length of the filter."*

XIV. Independent claim 1 of auxiliary request 1 compared to claim 1 of the Main Request and independent claim 5 according to auxiliary request 1 compared to independent claim 6 of the Main Request contain each the following additional feature:

*"wherein the gas impermeable zone is formed by the oxidation catalyst (32)".*

XV. Independent claim 1 according to auxiliary request 2 compared to claim 1 of auxiliary request 1 and independent claim 5 of auxiliary request 2 compared to claim 5 of auxiliary request 1 contain each the following additional feature:

*"wherein the SCR catalyst composition is deposited on the wall flow filter at a concentration of at least 0.8 g/in<sup>3</sup>".*

XVI. Independent claim 1 according to auxiliary request 3 compared to claim 1 of auxiliary request 2 and independent claim 5 of auxiliary request 3 compared to claim 5 of auxiliary request 2 contain each the following additional feature:

*"and wherein the SCR catalyst composition (30) is a CuCHA zeolite."*

XVII. This decision makes reference to the following documents:

- D1: N. P. Ramskill *et al.*, "Magnetic resonance velocity imaging of gas flow in a diesel particulate filter", Chemical Engineering Science 158 (2017), pages 490-499;
- D7: Declaration of Mr S. Reid, 23 July 2021;
- D11: S. Hashimoto *et al.*, "SiC and Cordierite Diesel Particulate Filters Designed for Low Pressure Drop and Catalyzed, Uncatalyzed Systems", SAE Technical Paper Series, 2002-1-0322, 2002, ISSN 0148-7191.



## **Reasons for the Decision**

### 1. *Main Request - Sufficiency of disclosure, Article 83 EPC*

- 1.1 The opposition division concluded that there was no indication on the testing conditions in claim 1 of the Main Request, nor any clear guidance concerning testing conditions in the patent, such that it was not possible to reliably and accurately determine the relative gas flows in different zones of the catalyst article of claim 1 of the Main Request. Consequently, it was not possible to reliably and accurately determine whether the gas flow in the gas impermeable zone was consistently lower by a factor of at least two (cf. points 1.2.21 and 1.2.22 of the Reasons of Decision).
- 1.2 As correctly brought forward by the appellant, it is established jurisprudence of the Boards of Appeal that an objection of lack of disclosure presupposes that there are serious doubts substantiated by verifiable facts. The burden of proof is upon the opponent to establish on the balance of probabilities that a person skilled in the art, using his common general knowledge, would be unable to carry out the invention. This burden of proof is not shifted to the proprietor solely by the fact that the patent has been revoked in opposition proceedings due to the alleged insufficient disclosure (cf. T 1076/21, point 1. of the reasons).
- 1.3 In the present case, however, there are further reasons that justify a shift in the burden of proof to the proprietor.

- 1.4 According to established case law of the Boards of Appeal, when the patent does not give any information as to how a feature of the invention can be put into practice, only a weak presumption exists that the invention is sufficiently disclosed. In such a case, the opponent can discharge his burden by plausibly arguing that common general knowledge would not enable the skilled person to put this feature into practice (see the Case Law of the Boards of Appeal [CLB], 10th edition, 2022, II.C.9.1).
- 1.5 The opposition division correctly acknowledged that any definition of a method for determining the gas flow through a zone of the catalyst article was absent in either claim 1 of the Main Request or the description of the patent. This finding remains uncontested by the appellant. In the present case there is thus only a weak presumption in favor of the proprietor that the underlying invention defined in the claims is sufficiently disclosed in the patent.
- 1.6 The respondent further submitted declaration D7, in which an expert working for the opponent gave the opinion, that the determination of the gas flow factor would not be a matter of simply measuring the pressure drop across the entire catalyst article and then applying Darcy's law, since Darcy's law is valid in a homogeneously permeable medium while the catalyst article of claim 1 according to the Main Request is not homogeneously permeable.
- 1.7 Declaration D7, as opinion of an expert, is admissible evidence under Article 117(1)e) EPC. No circumstances have been presented that would question the credibility or qualification of the expert. The mere fact that the expert is an employee of the respondent does not in

itself cast doubt on the value of the opinion. The statements of employees of parties to the proceedings are not objectionable *per se* (cf. CLB, *ibid*, III.G. 4.2.2a)).

- 1.8 In addition, the board came as well to the conclusion that the opinion is supported by document D11, submitted by the appellant.
- 1.9 Although document D11 was submitted with the statement setting out the grounds of appeal, *i.e.* late and subject to its admission by the board under Article 12 (6) RPBA, both parties agreed that its late filing was a legitimate reaction to the Reasons of Decision (cf. reply to statement setting out the grounds of appeal, point 2.7). In view of the absence of any obvious reasons to the contrary, the board exercises its discretion under Article 12(6) RPBA to admit document D11 into the proceedings.
- 1.10 Document D11 provides a study of the permeability of a wall in a diesel particulate filter also called "DPF" (such as a zone of the catalyst article) under the assumption, that Darcy's Law was applicable (cf. D11, Figure 5 depicting the used measurement method, and page 3, left-hand column, first complete paragraph). This assumption is based on the observation, that the "[...] Reynolds number of the channel flow in the DPF is in the range of laminar flow even at the maximum engine flow rate conditions" (cf. D11, page 2, right-hand column, last paragraph).
- 1.11 However, the respondent rightly argued during oral proceedings that in claim 1 according to the Main Request the gas impermeable zone is defined by the gas

flow through this area of the filter wall and not by the permeability of the filter wall as a whole.

1.12 In document D11, with reference to the method shown in Figure 5, the permeability is specified as a parameter that is not simply dependent on the properties of the wall but also on other parameters, such as the air velocity or the viscosity of the air. In other words, in the context of the method described in Figure 5, document D11 does not use the inherent wall permeability, i.e. an intrinsic property of the wall as in claim 1, but an "effective permeability" in order to be able to apply Darcy's law in the shown study.

1.13 The board is therefore convinced that document D11 corroborates the finding of the opposition division, that gas flow values across a porous filter wall in a diesel particulate filter depend on testing conditions such as feed flow rates and in consequence that to determine whether a catalyst article according to claim 1 of the Main Request is not a matter of simply measuring the pressure drop across the catalyst article as a whole (see Figure 5 of document D11) and then applying Darcy's law.

In particular, document D11 does not provide any teaching on how to measure the permeability of an area of the filter wall, i.e. how the above mentioned parameters (see point 1.12 above), which definitely influence the permeability measurement, apply *in-situ* locally on said area of the filter wall in comparison with the others areas of the filter wall, in real operating conditions for the filter. There is also no indication in document D11 how the above mentioned parameters evolve in case the operating conditions change. Cutting out some parts of the filter and

applying the method shown in Figure 5 of document D11 in order to measure a permeability, as argued by the appellant, does still not lead to the permeability of the areas of the filter wall since the real *in-situ* conditions influencing permeability are unknown, especially locally, and also evolve with time.

- 1.14 No other method than the method shown in Figure 5 of document D11 for measuring gas flow rates in the catalyst article has been presented by the appellant.
- 1.15 Document D11 yet describes a method for measuring permeability in an *ex-situ* set-up, as shown in Figure 5. Considering the fact that permeability as defined in this context is dependent on external factors, the method of Figure 5 cannot represent a procedure for determining gas flow that can be readily transferred to an *in-situ* situation in a catalyst article.
- 1.16 In conclusion, the board agrees with the Opposition Division's findings in point 1.2.21 of the Reasons of Decision, that in absence of any indication or any clear guidance on the testing conditions, it is not possible to reliably and accurately determine the relative gas flows in different zones of the catalyst article.
- 1.17 Given these particular circumstances of the case, the board concurs with the respondent that the person skilled in the art did not have sufficient information to carry out the invention. The board notes, that taking the content of document D1 into consideration is unnecessary for this finding.
- 1.18 Therefore, the Main Request does not fulfill the requirements of Article 83 EPC.

2. *Auxiliary Requests 1 to 3*

Regarding auxiliary requests 1 to 3, the appellant did not explain why the amendments made in these requests would change the situation regarding the requirements of Article 83 EPC. They solely referred to their arguments regarding the Main Request. As correctly stated in the decision under appeal and argued by the respondent, none of the auxiliary requests 1 to 3 can overcome the obstacles regarding sufficiency of disclosure as explained above for the Main Request.

3. *Request for a referral of questions to the Enlarged Board of Appeal*

The request for referral of questions to the Enlarged Board of Appeal was made under the condition that document D1 became relevant in the discussion of the requirements of Article 83 EPC. Since this is not the case and the facts as presented in declaration D7 and document D11 alone were sufficient for the aforementioned decision, the request for referral is moot.

**Order**

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

**The appeal is dismissed.**

The Registrar:

The Chairman:



G. Nachtigall

G. Patton

Decision electronically authenticated