

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JOHNSON MATTHEY INC., and JOHNSON MATTHEY PLC,
Petitioners,

v.

BASF CORPORATION,
Patent Owner.

Case IPR2015-01266
Patent 9,039,982 B2

Before CHRISTOPHER L. CRUMBLY, JO-ANNE M. KOKOSKI, and
JEFFREY W. ABRAHAM, *Administrative Patent Judges*.

ABRAHAM, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Johnson Matthey Inc., and Johnson Matthey Plc (collectively “Petitioner”) filed a Petition seeking *inter partes* review of claims 1–27 of U.S. Patent No. 9,039,982 B2 (Ex. 1001, “the ’982 patent”). Paper 1 (“Pet.”). BASF Corporation (“Patent Owner”) filed a Patent Owner Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”). Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we institute an *inter partes* review of claims 1–27 as discussed below.

Our findings of fact and conclusions of law are based on the record developed thus far, prior to the Patent Owner’s Response. This is not a final decision as to the patentability of any challenged claim. Any final decision will be based on the full record developed during trial.

II. BACKGROUND

A. *Related Proceedings*

Petitioner indicates that the ’982 patent issued from Application No. 14/497,454, which was a continuation of Application No. 13/274,635 (now issued as U.S. Patent No. 8,899,023), which itself was a continuation of Application No. 11/676,798 (now issued as U.S. Patent No. 9,032,709), itself a divisional of Application No. 10/634,659 (now issued as U.S. Patent No. 7,229,597). Pet. 2. Petitioner filed IPR petitions challenging the claims of U.S. Patent No. 8,899,023 (IPR2015-01265) and U.S. Patent No. 9,032,709 (IPR2015-01267). *Id.*; Paper 6. Petitioner also identifies pending *inter partes* reexamination proceedings pertaining to U.S. Patent

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No. 7,229,597 (Reexam No. 95/001,745) and another patent in the same family, U.S. Patent No. 7,902,107 (Reexam No. 95/001,744). Pet. 2.

B. The '982 Patent

The '982 patent, titled “Catalyzed SCR Filter and Emission Treatment System,” issued on May 26, 2015. The '982 patent discloses “a catalyst article for simultaneously remediating the nitrogen oxides (NO_x), particulate matter, and gaseous hydrocarbons present in diesel engine exhaust streams.” Ex. 1001, Abstract.

The '982 patent teaches that several filter structures effective in physically removing particulate matter from diesel exhaust were known in the art. *Id.* at 2:13–29. According to the Specification, these filters are capable of removing over 90% of the particulate matter from diesel exhaust. *Id.* One example of a filter suitable for use in the claimed invention is a wall flow filter, and is illustrated in Figures 2 and 3 of the '982 patent, reproduced below.

Figure 2

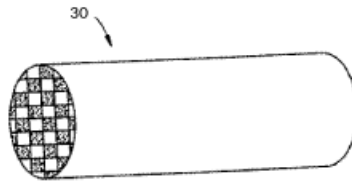


Figure 3

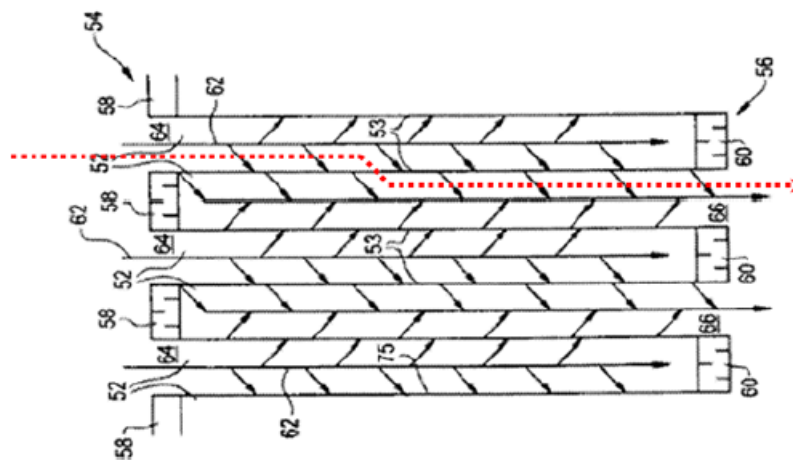


Figure 2 shows a “perspective view” of wall flow filter substrate 30, and Figure 3 shows a cross sectional view of the substrate shown in Figure 2, as annotated by Patent Owner with a red line to depict a representative passageway for exhaust gas through the substrate. *Id.* at 5:64–67, 9:10–20; *see* Prelim. Resp. 8. As shown in these figures, substrate 30 has inlet end 54, outlet end 56, and a plurality of fine, substantially-parallel gas flow passages extending along the longitudinal axis of the substrate. Ex. 1001, Figs. 2, 3, 8:62–65. Alternate passages are plugged at the inlet end with plugs 58, and at the outlet end with plugs 60. *Id.* at 9:13–16. This forms a checkerboard pattern (as depicted in figure 2) at inlet end 54 and outlet end 56. *Id.* In this configuration, a gas stream cannot enter and exit the substrate

through the same passage. *Id.* at 9:16–20. Instead, a gas stream entering through an unplugged channel inlet (e.g., 64) is stopped by outlet plug 60 in that passage, and must diffuse through a porous channel wall (e.g., 53) in order to exit out of channel outlet 66. *Id.* As the gas passes through the porous channel wall, particulate matter in the gas is trapped therein. According to the '982 patent, “[t]ypical wall flow filters in commercial use” are formed with wall porosities from about 35% to 50%, and have a “very broad” pore size distribution, with a mean pore size typically smaller than 17 microns. *Id.* at 9:51–56.

The '982 patent teaches that as particulate matter accumulates on the filter, the back pressure from the filter on the engine increases. *Id.* at 2:21–24. Therefore, these particles must be continuously or periodically burned out of the filter to maintain an acceptable back pressure. *Id.* at 2:24–26. This is referred to as filter regeneration. *Id.* at 2:38–39. Typically, a temperature in excess of 500° C is required to burn the carbon soot particles, which is above the temperature normally present in diesel exhaust. *Id.* at 2:26–29. Therefore, provisions, such as a catalyst, are generally introduced to lower the soot burning temperature to those present under normal diesel engine operating conditions. *Id.* at 2:30–39.

The '982 patent also describes Selective Catalytic Reduction (“SCR”), a process wherein NO_x is reduced, by a reductant such as ammonia, to nitrogen in the presence of a catalyst typically composed of base metals, as a “proven NO_x abatement technology applied to stationary sources,” and discloses that SCR is under development for mobile applications. *Id.* at 1:19–20, 2:40–50.

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