

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VOLKSWAGEN GROUP OF AMERICA, INC.,
Petitioner,

v.

EMERACHEM HOLDINGS, LLC,
Patent Owner.

Case IPR2014-01554
Patent 6,037,307

Before FRED E. McKELVEY, JAMES T. MOORE, and
SHERIDAN K. SNEDDEN, *Administrative Patent Judges*.

McKELVEY, *Administrative Patent Judge*.

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

I. Introduction

A. Background

A Petition (“Pet.”) (Paper 2) seeking to institute an *inter partes* review trial in connection with unexpired U.S. Patent No. 6,037,307 (“’307 patent”) (Ex. 1001) is before the Board.

Patent Owner has timely filed a Preliminary Response (“Prelim. Resp.”) (Paper 7).

B. The Parties

Petitioner is Volkswagen Group of America, Inc.

Patent Owner is EmeraChem Holdings, LLC.

C. Related Cases and Litigation

Five petitions seeking *inter partes* review have been filed by Petitioner challenging patents owned by Patent Owner:

- (1) IPR2014-01554 (Patent 6,037,307);
- (2) IPR2014-01555 (Patent 5,451,558);
- (3) IPR2014-01556 (Patent 5,953,911);
- (4) IPR2014-01557 (Patent 7,951,346 B2); and
- (5) IPR2014-01558 (Patent 5,599,758).

According to Petitioner, the five patents are involved in litigation, *viz.*, *EmeraChem Holdings, LLC v. Volkswagen Group of America, Inc., Volkswagen AG, and Volkswagen Group of America Chattanooga Operations, LLC*, No. 14-cv-132-TAV (E.D. Tenn. filed Mar. 31, 2014).¹
Pet. 1; Paper 6, 2; Paper 10, 1.

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An original complaint was served on defendant Volkswagen Group of America Chattanooga Operations, LLC, on 3 April 2014. Paper 10, 1.

An original complaint was served on defendant Volkswagen Group of America, Inc., on 6 November 2014. *Id.*

An amended complaint was served on defendant Volkswagen AG on 8 January 2015. *Id.*

D. Evidence Relied Upon

The following evidence, listed by exhibit number, is relied upon in support of the Petition:

Name	Exhibit No.	Description	Date
Joy et al. “Joy”	1004	U.S. Patent No. 4,760,044	26 July 1988
Tauster et al. “Tauster”	1005	U.S. Patent No. 4,939,113	3 July 1990
Rieck et al. “Rieck”	1006	<i>Development of Non-Nickel Additives for Reducing Hydrogen Sulfide Emissions from Three-Way Catalysts,</i> SAE TECHNICAL PAPER SERIES 892095, ISSN 0148-7191	©1989

¹ We understand that the civil action has been reassigned to a different judge and is now identified as No. 14-cv-132-PLR-HBG.

E. The Asserted Grounds

Claims 1–15 appear in the '307 patent.

The following grounds of alleged unpatentability are urged in the Petition.

	Statutory Basis	Prior Art Relied On	Claims
Ground 1	§ 102(b)	Joy	1–8 and 11
Ground 2	§ 102(b)	Tauster	1–8 and 11
Ground 3	§ 102(b)	Rieck	1–7 and 11

Claims 9, 10, and 12–15 are not challenged.

II. Analysis

A. Claimed Invention

Claim 1 of the '307 patent reads [indentation and matter within brackets added]:

A regenerable catalyst/sorber for removing gaseous sulfur compounds from gaseous streams comprising

[1] a noble metal catalyst component,

[2] a metal oxide sorber component selected from Ti, Zr, Hf, Ce, Al, Si or mixtures thereof and

[3] up to 0.3 g/in³ of a modifier component consisting of an oxide of Ag, Cu, Bi, Sb, Sn, As, In, Pb, Au or mixtures thereof.

According to the written description portion of the '307 patent, the catalyst for Example 10 was prepared with the following elements:

- (1) Ceramic honeycomb carrier;
- (2) Sorber component of 2.2 g/in³;
- (3) Platinum (Pt) loading from 0.25 to 1.1 wt % of the sorber component; and
- (4) Metal modifier prepared with the metal nitrate precursor (0.00 to 0.30 g/in³).

Ex. 1001, 7:14–22.

Example 10

Example 10 . . . [is said to illustrate] the effect of Pt loading on the SO₂ breakthrough during 60 ppm SO₂ sorption cycles with a TiO₂/Pt/Cu catalyst/sorber (2.18 g/in³ TiO₂/Pt: 0.3 g/in³ Cu(NO₃)₂) at 500° F. FIG. 10 [reproduced below] . . . [is said to show] that the efficiency of the TiO₂/Pt/Cu is directly related to the Pt loading, such that the higher the loading the higher the sulfur capture capacity.

Ex. 1001, 8:44:50.

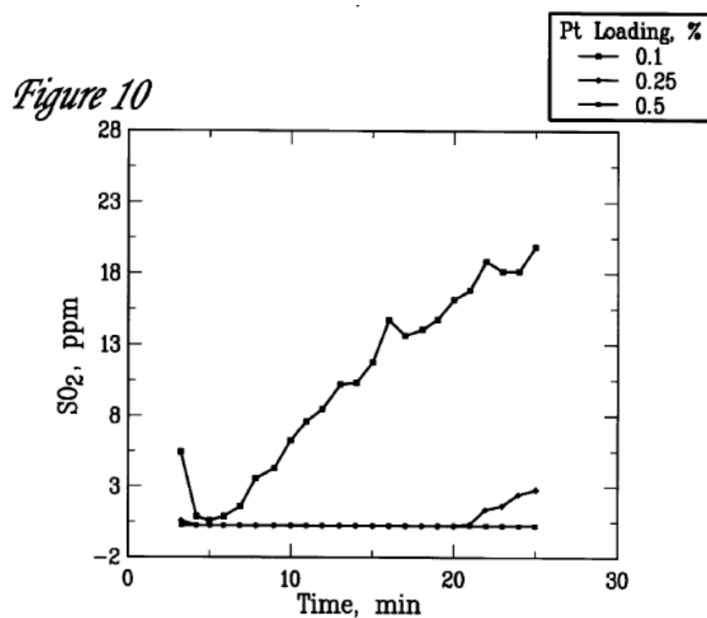


Fig. 10 depicts a graph describing the effect of Platinum (Pt) loading reported as wt % of sorber/carrier on the sulfur dioxide (SO₂) breakthrough during 60 ppm SO₂ run cycles at 500 °F

B. The Preliminary Response

The Preliminary Response (“Prelim. Resp.”) does not address the merits of whether the relied upon prior art references anticipate any claim of the ’307 patent.

Rather, the Preliminary Response maintains that an *inter partes* review trial should not be instituted because the three grounds asserted by Petitioner are said to be “horizontally redundant.” Prelim. Resp. 3 (emphasis omitted.)

As will become apparent below, we institute on all three grounds urged by Petitioner.

Neither we nor Petitioner know at this time what Patent Owner's position is on the merits as to any of the three urged grounds.

Accordingly, and assuming *arguendo* that we had a view of which of the three grounds might be the strongest, our view could change upon consideration of Patent Owner's merits response.

Assuming that Patent Owner plans to contest each ground, we foresee different arguments for each ground given that the disclosure of each relied upon reference is different.

For these reasons, we feel the prudent course on which to proceed is to consider each ground on its merits having the benefit of the views of both parties without overburdening the parties or the Board.

We have not overlooked three Board decisions cited in the Preliminary Response, each of which is readily distinguishable.

In *Liberty Mutual Ins. Co. v. Progressive Casualty Ins. Co.*, CBM2012-00003, Paper 7 (PTAB Oct. 25, 2012) (9-judge panel), a petitioner urged 422 grounds of unpatentability over the prior art against 20 claims of a patent. As noted in the opinion, an average of 21 grounds was urged per claim. We have nothing here which would remotely compare to what petitioner attempted in *Liberty Mutual*.

In both *Oracle Corp. v. Clouding IP, LLC*, IPR2013-00075, Paper 8 (PTAB May 3, 2013), and *Berk-Tek LLC v. Belden Technologies Inc.*, IPR2013-00057, Paper 21 (PTAB May 14, 2013), decisions to institute followed submissions of preliminary responses (Papers 7 and 9, respectively) by the patent owners addressing the urged grounds—unlike the

case before us where Patent Owner has not yet addressed the urged grounds on the merits. In *Oracle*, one anticipation and four obviousness grounds were urged. Obviousness grounds are inherently more burdensome on the parties than anticipation where a patent owner only needs to point out a limitation missing from the prior art. In *Berk-Tek*, with one exception, the decision to institute (Paper 11) reveals that each ground urged was evaluated on the merits to determine whether to institute on each ground.

We therefore exercise our discretion in this case and institute on all three grounds.

C. Anticipation

To establish anticipation, a party must show that a prior art reference expressly or inherently describes each claim limitation arranged as in the claim said to be anticipated. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1334–35 (Fed. Cir. 2008); *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

Whether a reference anticipates a claim is a question of fact. *In re Baxter Travenol Lab.*, 952 F.2d 388, 390 (Fed. Cir. 1991).

D.

Petitioner has presented direct declaration testimony of Dr. Robert J. Farrauto. Ex. 1007.

On the record before us, we find that Dr. Farrauto is qualified to testify on the subject matter involved and to offer scientific opinions concerning that subject matter.

We note that his testimony appears to be consistent with the disclosures of the three references upon which his scientific opinions are based.

E. Ground 1

Petitioner has shown that there is a reasonable likelihood it will prevail on Ground 1 (Joy-Ex. 1004) with respect to at least one of the claims challenged in the Petition. 35 U.S.C. § 314(a).

The invention defined by Joy claim 15, when interpreted in light of the written description portion of the Joy patent, likely anticipates claim 1 of the '307 patent.

Joy claim 15 depends from Joy claim 11 which depends from Joy claim 3 which depends from Joy independent claim 1.

Joy claim 1 calls for a “catalytic composite” which the written description portion of the specification describes as being useful for treatment of an exhaust gas comprising *inter alia* sulfur oxides. Ex. 1004, 3:38–42; 9:24–58.

Joy claim 15 calls for copper to be “present in a concentration of about 0.7 to about 15 g per liter of carrier volume” (Ex. 1004, 16:53–55), which Dr. Robert J. Farrauto testifies “converts to 0.011 to about 0.246 grams per in³” (Ex. 1007 ¶ 23).

Claim 15 therefore likely describes limitation [3] of claim 1 of the '307 patent.

Joy claim 1 calls for one main catalytic material which can be platinum—a noble metal catalytic material. Ex. 1004, 16:1.

Joy claim 1 therefore likely describes element [1] of claim 1 of the '307 patent.

Joy claim 1 also calls for a secondary support comprising zirconia (zirconium oxide) or titania (titanium dioxide).

Joy claim 1 therefore likely describes element [2] of claim 1 of the '307 patent.

Based on the same disclosure of Joy, each of claims 2–8 and 11 of the '307 are likely anticipated by Joy.

F. Ground 2

Petitioner has shown that there is a reasonable likelihood it will prevail on Ground 2 (Tauster–Ex. 1005) with respect to at least one of the claims challenged in the Petition. 35 U.S.C. § 314(a).

Tauster claim 1 calls for a catalyst system including:

three way catalyst means . . . comprising a first section of [a] refractory monolithic substrate, a particulate gamma alumina support dispersed on said first section of refractory monolithic substrate and catalyst metals chosen from the group consisting of palladium, the combination of platinum plus rhodium, and mixtures of platinum, palladium and rhodium, said catalyst metals being dispersed on said particulate gamma alumina support; and means for suppressing release of hydrogen sulfide comprising a second section of monolithic refractory substrate having CuO dispersed thereupon in an amount of at least about 0.005 g/in³ of monolith

Ex. 1005, 15:60–16:15.

Tauster's 0.005 % g/in³ is within Patent Owner's claimed range of up to 0.3 g/in³.

Accordingly, Tauster claim 1 likely meets the requirements of limitation [3] of claim 1 of the '307 patent as reproduced above.

Tauster claim 1 also calls for catalyst means including (1) palladium, (2) mixtures of platinum and rhodium and (3) mixtures of platinum, palladium, and rhodium—all noble metals.

Accordingly, Tauster claim 1 likely meets the requirements of limitation [1] of claim 1 of the '307 patent.

Tauster describes making TWC Catalyst Preparation II (TWC means “three-way catalyst”). Ex. 1005, 5:40 *et seq.*

According to Tauster, “[u]nstabilized alumina is impregnated with monoethanolamine platinum hexahydroxide and ceria” Ex. 1005, 5:41–42 and 48.

Dr. Farrauto testifies that a person having ordinary skill in the art would understand, based on the process described by Tauster, that platinum and ceria (cerium oxide) would be deposited on the monolith. Ex. 1007, ¶¶ 26 (last three lines) and 27.

Example IV (Ex. 1005, 9:44) describes an additional step of adding CuO.

Table IX (*id.* at col. 14) describes data pertaining to the preparation of two sets of CuO-promoted TWC–II (*id.* at 10:32–33).

Table XI (*id.* at col. 15) describes data purporting to demonstrate that catalysts with CuO reduced transition of H₂S (hydrogen sulfide) more than 90% (*id.* at 10:41–47).

Accordingly, Tauster likely meets the requirements of limitation [2] of claim 1 of the '307 patent as reproduced above.

Based on the same disclosure of Tauster, each of claims 2–8 and 11 of the '307 are likely anticipated by Tauster.

G. Ground 3

Petitioner has shown that there is a reasonable likelihood it will prevail on Ground 3 (Rieck²-Ex. 1006) with respect to at least one of the claims challenged in the Petition. 35 U.S.C. § 314(a).

An extended discussion concerning the applicability of Rieck is not necessary.

The discussion beginning with the second sentence on page 37 of the Petition through page 39, as well as the testimony of Dr. Farrauto (Ex. 1007, ¶¶ 29–33), demonstrates that Petitioner is likely to succeed as to claims 1–7 and 11 of the '307 patent.

We add the following. The catalyst is described as containing CeO₂ (cerium oxide) as shown in footnote (b) of Table 1. It also is described as having platinum and CuFe₂O₄, thus appearing to meet each of limitations [1], [2], and [3] of claim 1 of the '307 patent as reproduced above. Based on the disclosure of Rieck discussed in the Petition and by Dr. Farrauto, each of claims 2–8 and 11 of the '307 are likely anticipated by Rieck.

III. ORDER

² Rieck has two sets of page numbers, one at the top and one at the bottom. We, like Petitioner, refer to the page numbers at the bottom. In any future paper, Patent Owner too should refer to the page numbers at the bottom.

Upon consideration of the Petition and the Preliminary Response, and for the reasons given above, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review trial is hereby instituted on the following grounds.

Ground 1: claims 1–8 and 11 of the '307 patent as anticipated under § 102(b) over Joy.

Ground 2: claims 1–8 and 11 of the '307 patent as anticipated by Tauster.

Ground 3: claims 1–7 and 11 of the '307 patent as anticipated by Rieck.

FURTHER ORDERED that *inter partes* review of the '307 patent is hereby instituted commencing on the date of this DECISION. 35 U.S.C. § 314(a).

FURTHER ORDERED that notice is hereby given of the institution of an *inter partes* review trial. 35 U.S.C. § 314(c); 37 C.F.R. § 42.4.

FURTHER ORDERED that the trial is limited to the grounds and claims identified above.

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