

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UMICORE AG & CO. KG,

Petitioner,

v.

BASF CORPORATION

Patent Owner.

IPR2015-01121

U.S. Patent 7,601,662

**PATENT OWNER'S RESPONSE TO PETITION
FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,601,662**

Table of Contents

I. INTRODUCTION1

II. THE 662 PATENT6

 A. Overview of Zeolites6

 B. The Claimed Invention9

 C. The Outstanding Properties of the Claimed CuCHA Catalyst.....11

 D. Claim Construction12

 1. “[C]atalyst” (claim 1).....12

 2. “[Z]eolite having the CHA crystal structure” (claim 1)12

 3. “[T]he catalyst effective to promote the reaction of ammonia with nitrogen oxides to form nitrogen and H₂O selectively” (claim 1)12

III. SCOPE AND CONTENT OF THE PRIOR ART.....14

 A. The Known Problem with Metal-Exchanged Zeolites.....15

 B. Zeolite Frameworks for the SCR of NO_x18

 C. Prior Art in the IPR Grounds.....20

 1. U.S. 6,709,644 to Zones (Exhibit 1004).....20

 2. U.S. 4,046,888 to Maeshima (Exhibit 1002)21

 3. U.S. 2006/0039843 to Patchett (Exhibit 1005).....22

IV. THE CHALLENGED CLAIMS ARE NOT OBVIOUS IN VIEW OF ZONES, MAESHIMA, AND PATCHETT 84323

 A. Zones in view of Maeshima (Ground 1: Claims 1-8, 30)25

 B. Zones and Maeshima in view of Patchett 843 (Ground 2: Claims 12-24, 32-50).....32

V. OBJECTIVE INDICIA STRONGLY SUPPORT A FINDING OF NONOBVIOUSNESS37

 A. Skepticism of Experts.....39

 B. Unexpected Results41

 C. Commercial Success.....44

VI. PETITIONER'S CLAIMS OF PREDICTABILITY ARE WITHOUT MERIT46

 A. Criticality of the Claimed Ranges48

 B. Predictability of Increasing Cu/Al Ratio.....51

 C. Predictability of Increasing SAR53

VII. CONCLUSION.....55

Petitioner's Table of Exhibits

Exhibit 1001	U.S. 7,601,662
Exhibit 1002	U.S. 4,046,888 to Maeshima
Exhibit 1003	U.S. 4,503,023 to Breck
Exhibit 1004	U.S. 6,709,644 to Zones
Exhibit 1005	U.S. Pat. App. Pub. 2006/0039843 to Patchett
Exhibit 1006	U.S. Pat. App. Pub. 2005/0031514 to Patchett
Exhibit 1007	Dedecek et al., "Siting of the Cu ⁺ Ions in Dehydrated Ion Exchanged Synthetic and Natural Chabasites: a Cu ⁺ Photoluminescence Study," Microporous and Mesoporous Materials, Vol. 32, pp. 63-74 (1999).
Exhibit 1008	Expert Declaration of Dr. Lercher
Exhibit 1010	U.S. 4,961,917 to Byrne
Exhibit 1011	U.S. 5,516,497 to Speronello
Exhibit 1012	Ishihara et al., "Copper Ion-Exchanged SAPO-34 as a Thermostable Catalyst for Selective Reduction of NO with C ₃ H ₆ ," 169 Journal of Catalysis 93-102 (1997)
Exhibit 1013	U.S. 4,297,328 to Ritscher
Exhibit 1014	Chung, S.Y. et al., "Effect of Si/Al Ratio of Mordenite and ZSM-5 Type Zeolite Catalysts on Hydrothermal Stability for NO Reduction by Hydrocarbons," Studies in Surface Science and Catalysis, vol. 130, pp. 1511-1516 at 1513 (2000)
Exhibit 1015	Declaration of Dr. Frank-Walter Schutze
Exhibit 1016	U.S. 4,544,538 to Zones

Patent Owner's Table of Exhibits

Exhibit 2001	Declaration of Stanley Roth in the <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2002	Cavataio, G., et. al., "Enhanced Durability of a Cu/Zeolite Based SCR Catalyst." SAE Int. J. Fuels. Lubr., Vol. 1, Issue 1 (2008).
Exhibit 2003	Declaration of Ahmad Moini in the <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2004	Second Declaration of Pramod Ravindran in the <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2005	Third Party Comments After Patent Owner's Response After ACP in the <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2006	USPTO Right of Appeal Notice for Reexamination of U.S. Patent No. 7,601,662
Exhibit 2007	Request for <i>Inter Partes</i> Reexamination in the proceedings of U.S. Patent No. 7,601,662
Exhibit 2008	Order Granting/Denying Request for <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2009	Declaration of Stacey I. Zones in the <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2010	Declaration of Gary L. Haller in the <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2011	Second Declaration of Ahmad Moini in the <i>Inter Partes</i> Reexamination of U.S. Patent No. 7,601,662
Exhibit 2012	Centi, G., et. al., "Nature of Active Species in Copper-Based Catalysts and their Chemistry of Transformation of Nitrogen Oxides," Applied Catalysis A: General, Vol. 132, Issue 2 (1995)

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.