

18th American Filtration and Separations Society Annual Conference 2005

**Ann Arbor, Michigan, USA
19-22 September 2005**

ISBN: 978-1-62993-126-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2005) by the American Filtration & Separations Society
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the American Filtration & Separations Society
at the address below.

American Filtration Society
7608 Emerson Avenue South
Richfield, MN 55423

Phone: (612) 861-1277
Fax: (612) 861-7959

www.afssociety.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Particulate Matter Measurement Challenges Associated with the 2007 and Future Diesel Emissions	
Regulations	1
<i>Shirish A. Shimpi</i>	
Characterizing Transient Engine Particulate Emissions and Aftertreatment System Performance with Real-Time Measurement Instrumentation	2
<i>Z. Gerald Liu, Tad Jaroszczyk, Edward Thurow</i>	
Performance of Diesel Particulate Filters under Transient Engine Conditions	3
<i>Z. Gerald Liu, Edward M. Thurow, Robert Caldow, Timothy R. Johnson</i>	
A New Standard Test Method to Evaluate Water Separation Efficiency of Diesel Fuel Filters	4
<i>C. Peuchot, M.L. Zanota, N. Petillon</i>	
Low Emission Diesel Testing Solutions General Trends and the Influence of Heavy Duty on Light Duty Testing and Measurement	15
<i>Rick Rooney-Horiba</i>	
Use of Condensation Particle Counters for the Proposed European Engine Exhaust Number Standard	29
<i>Tim Johnson, Wei Liu, Brian L. Osmondson</i>	
A Study of Methane Light-off Characteristics in a Reverse Flow Catalytic Converter	30
<i>B. Liu, R.E. Hayes, Y. Yi</i>	
1D and 3D Simulation of DPF Systems: Improving Model Accuracy by Use of a Genetic Algorithm	52
<i>Roland Wanker</i>	
Integration of an Aftertreatment Model with a Simulink Vehicle Dynamic System Model for Controls Development	69
<i>Gary Salemme</i>	
A Macroscopic Model of Soot Loading Prediction for a Wall-Flow DPF	79
<i>Yong Yi</i>	
3-D Numerical Study on Fluid Flow and Pressure Loss of Mixing Channel and Wall Flow Inside a DPF	80
<i>Xiaogang Zhang, Martin Romzek, Mathias Keck, David Tsang, Chris Morgan</i>	
Performance of High Porosity Ceramic Material for Diesel PM Emission Control	107
<i>Cheng G. Li</i>	
High Performance Thermoelectric Devices for Efficient Waste Heat Energy Recovery	108
<i>Edward Siivola, Chris Caylor, Peter Thomas, Anil Reddy, Bruce Cook, Rama Venkatasubramanian</i>	
Investigation of Oxidation Catalysts/Zeolites for Treating Diesel Exhaust from Mobile Sources	112
<i>Adria F. Lotus, Robert W. Peters</i>	
Infrared-Irradiated Fuel for Increased Fuel Conversion Efficiency	119
<i>Albert C. Wey, Yue-Bin Sun, Chin-Long Wey</i>	
An Electric Field Method to Form Aligned Glass Microfiber Filter Media	138
<i>Aaron R. Hopkins, Ankur Patel, G.G. Chase</i>	
Effect of Wettability of Fibers on Liquid - Liquid Coalescence	150
<i>K. Moorthy, C.G. Shin, B. Newby, G.G. Chase</i>	
Effect of Saturation on Coalescence Filtration	160
<i>S. Andan, S. Hariharan, G.G. Chase</i>	
Motion of Drops on Fibers	180
<i>S. Dawar, G.G. Chase</i>	
Advances in Filter Media Development for Diesel Exhaust Systems	193
<i>Richard D. Nixdorf</i>	
Ceramic Nanofiber Enhanced Filter Medium	194
<i>Prathyusha Katta, G.G. Chase</i>	
Variation in Thermal Oxidation Behavior Between Soots Produced from Alternative Fuels	206
<i>Juhun Song, U.J. Kim, Mahabubul Alam, Andre L. Boehman</i>	
Foam Media as Hydrocarbon Emission Control in Gasoline Automotive Air Induction Systems	209
<i>Scott A. Schaffer, Tony Arruda, Jeffrey Leffel</i>	
A New Standard Approach of Automotive Component and Fluid Circuit Cleanliness	210
<i>Christophe Peuchot</i>	
Bypass Lube Oil Filtration in Diesel Engines Utilizing Depth Technology	225
<i>Dan Cloud, Chris Seiders, Randy Fields</i>	
The Diesel Particulate Filter Market: How Prepared is the Filtration Industry?	232
<i>John Finley</i>	

The Auto Future: It is the Perfect Storms Storm.....	243
<i>David E. Cole</i>	
Closed Crankcase Ventilation Systems: Measurements of the Boundary Conditions and for Application.....	270
<i>Hartmut Sauter, Yakup Oezkaya</i>	
Diesel And Gas Engine Emission Solutions: Camshaft with Integrated Oil Separator	284
<i>Hartmut Sauter, Yakup Oezkaya, Torsten Schellhase</i>	
Closed Crankcase Filtration for Diesel Engines, Naturally Aspirated Engines and Natural Gas Engines ISO 20564 Update.....	293
<i>Robert Dushek</i>	
Crankcase Ventilation Systems - New Developments	294
<i>T. Hilbert</i>	
Nanofiltration – A Method for Solute Removal from Fuel Simulants.....	304
<i>E.S. Tarleton, J.P. Robinson</i>	
Synthesis of Ceramic Nanofibers.....	312
<i>A.F. Lotus, S.J. Park, P. Katta, K. Moorthy, P. Meduri, W. Kataphinan, E.A. Evans, R.D. Ramsier, D.H. Reneker, G.G. Chase</i>	
Multijet Nozzle for Electrospun Nanofibers.....	328
<i>G.G. Chase, O.O. Dosunmu, W. Kataphinan, D.H. Reneker</i>	
Nonwoven Nanofiber Filtration Media Made by Polymerization of Cyanoacrylate Monomer	335
<i>Sphuriti V. Doiphode, Darrell H. Reneker, G.G. Chase</i>	
Tests of Filtering Media for Liquid Filtration Introduction and Review.....	340
<i>Christophe Peuchot</i>	
Advance Filter Resting - Off the Beaten Path	349
<i>Jane J. Janas, Susan Goldsmith</i>	
Impact of Filter Test Parameters Upon the Uncertainty of Filtration Efficiency, Retention Capacity and Differential Pressure Vs Flow Rate Test Results	350
<i>N. Petillon, C. Peuchot</i>	
A New Online Particle Counting Cabinet.....	363
<i>C. Peuchot, N. Petillon</i>	
Reducing Uncertainty in Particle Size Measurement for Liquid Filter Testing	364
<i>Barry M. Verdegan, Robert Fletcher</i>	
RO Cartridge Filter Testing Using An Online Particle Counter Counter	374
<i>Erich Drawdy</i>	
An Electric Field Method to Form Aligned Glass Microfiber Filter Media	382
<i>Aaron R. Hopkins, Ankur Patel, G.G. Chase</i>	
Multijet Nozzle for Electrospun Nanofibers.....	394
<i>G.G. Chase, O.O. Dosunmu, W. Kataphinan, D.H. Reneker</i>	
A Mild, Environmentally Sound Alternative to Hydrolysis, Pyrolysis and Solvent Cleaning for Polymer Melt Filters.....	401
<i>B. Longworth, J.P. Millington, J. Norris, P. Norris, C. Reid</i>	
Quick and Easy Method for Testing Automotive Filter Cartridges and Filter Media.....	412
<i>Akshaya Jena, Krishna Gupta</i>	
Estimating Filter Media Filtration Efficiency Via Porometry Measurements	413
<i>Ernest Mayer</i>	
Measuring Pore Sizes in Critical Applications	444
<i>G.R. Rideal, E. Mayer</i>	
Role of Characterization in Media Development	454
<i>Benjamin Fuchs, Erik Gommeren, Karsten Keller, Anthony Trasatti, Shawn Reddell</i>	
European Standard Methods for the Certification of the Performances of Cartridge Filters and Other Drinking Water Filtration Materials	455
<i>Christophe Peuchot</i>	
FILTRAMETER: On-line Monitor of Filters	460
<i>James T. Farley</i>	
The Jorin ViPA	472
<i>Colin Tyrie, Nick Roth</i>	
Filtration System Dust Capacity Test Method for Gasoline Vehicle Fuel Delivery Modules.....	482
<i>Julie A. Gruber</i>	
Fractional Efficiency Testing for Engine Air Inlet Systems - A New Proposed ISO Working Draft	499
<i>Neville J. Bugli</i>	
Accurately Assessing Automatic Transmission Filters	500
<i>Lev Pekarsky, John Eleftherakis, Abe Khalil</i>	

Industry Update on “Bleedthrough”- The Recent Phenomena that Arises Out of In-Situ Certifications.....	512
<i>David Brande, R.Vijayakumar</i>	
Air Filter Test Methods - Comparing ASHRAE Method 52.2 and European Method EN 779	513
<i>Bob Burkhead</i>	
Metallic Filter Elements: Integrity Testing Post Cleaning.....	514
<i>Robert A. Smith</i>	
Quality Test of Rice Hull Ash Filter Aids.....	523
<i>Wenping Li, Carl Kiser, Quintin Richard</i>	
Development of A Filter Cake Permeability Test Methodology	532
<i>Wenping Li, Carl Kiser, Quintin Richard</i>	
Validating Disposable Filter Performance for Chemical Processing.....	540
<i>Raymond Collins</i>	
Lab Testing Protocols Used for Biosolids Dewatering.....	541
<i>Ernest Mayer</i>	
Laboratory Scale Testing to Qualify Automatic Pressure Filter (APF) Applications.....	555
<i>Steve W. Rose</i>	
Centrifugal Filter Cloth Screening Test by Bucket Centrifuge	556
<i>J. Gregory Wood</i>	
Author Index	