

American Filtration & Separations Society

20th Annual Conference and
Exposition of the American
Filtration and Separations Society
2007

March 26-30, 2007
Orlando, Florida, USA

Volume 1 of 2

Printed from e-media with permission by:

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

ISBN: 978-1-60423-293-6

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

American Filtration & Separations Society
20th Annual Conference and Exposition of the
American Filtration and Separations Society
2007

TABLE OF CONTENTS

VOLUME 1

Reclamation of Reactive Black B Contained Wastewater by Different Membrane Processes	1
<i>S. J. You, D. H. Tseng, J. H. Deng</i>	
Enhancement of Crossflow Microfiltration of CMP Graded Suspensions by the Use of Electric Field	32
<i>C-J. Chuang; C-C. Hsiung; Z-W. Tsai</i>	
Measuring Modified Fouling Index Using Charged Nanofiltration Membranes (MFI-NF)	52
<i>D. Nanda; K. L. Tung</i>	
Nanotechnology Fiber in Wet-Laid Depth Media	79
<i>A. D. Saxena</i>	
An Emerging Innovative Disinfection Technology	101
<i>P. S. Cartwright</i>	
Novel Device for Removal of Mercury from Produced Water and Vapor Streams	113
<i>H. Alper, S. J. Salter</i>	
Wet Laid Nanoalumina Media with the Capture Efficiencies of Membrane at Non Woven Flow Rates	134
<i>R. Komlenic</i>	
Advanced Polymers for Filtration Fibers	167
<i>J. S. Dugan, S. E. Graham, S. D. Kim, E. C. Homonoff</i>	
Converting Bags to Pleated: Pros, Cons, and Considerations	186
<i>T. Hensley</i>	
New Baghouse Filter Media for Operation Above 600 Degrees F	221
<i>T. Kane</i>	
High Flow Pleated Ceramic Fiber Filter Media	241
<i>D. Nixdorf</i>	
FIL2RO Program for Rapid Filter Media Design	267
<i>S. Dharmanolla, G. G. Chase</i>	
DEECOM: New Eco-Technology for Cleaning Metal Filters	273
<i>S. L. Reynolds</i>	
Novel Inorganic Filters for Crossflow and Dead-End	283
<i>S. Wittwer</i>	
Novel Membrane Device	307
<i>P. Harikrishnan</i>	
Numerical Modeling of Filtration Processes with Time-Dependent Inlet Concentration Source	327
<i>A. J. Chamkha; A. Al-Midhaf; M. Bayoumi</i>	

Changes in the Slurry Concentration During Initial Stages of Filtration	340
<i>A. Genc, I. Tosun</i>	
Prediction of Filtration Characteristics by Means of Multivariate Data Analysis	351
<i>A. Hakkinen; K. Pollanen; S-P. Reinikainen; M. Louhi-Kultanen; L. Nystrom</i>	
Modeling of Nanofiber Filters	366
<i>J. Wang, S. C. Kim, D. Y. H. Pui</i>	
Modeling of Drainage in Coalescence Filtration	390
<i>S. Andan, S. I. Hariharan, G. G. Chase</i>	
Minimizing the Pressure Drop Across Filters with Multi Cylindrical Filter Tubes	399
<i>M. Buzanowski, D. Fadda</i>	
Numerical Simulation of Inlet Duct Geometry Influence in Highly Laden Cyclones	404
<i>S. Pirker, D. Kahrmanovic</i>	
Cleaning Mechanism of Particles Adhering to Filter Media in Solid-Liquid-Separation	413
<i>S. Stahl, H. Nirschl</i>	
Effective Particle Washing in Solid-Liquid-Separation Processes	420
<i>I. H. Anlauf</i>	
Design of Seamless METal Powder Sintered Filter Elements	430
<i>J. Jones, R. Rohlig</i>	
High Performance Carbon Filter	467
<i>F. Tepper; L. Kaledin</i>	
Comparison of Membrane Filter Presses to Belt Filter Presses and Centrifuges	497
<i>E. Mayer</i>	
Filter Aids Pore Size and Pore Structure Characterization	515
<i>E. Mayer, W. Li</i>	
Design and Selection Criteria for Filter Press Operations for Wastewaters	526
<i>P. Scholtyssek</i>	
Rice Hull Ash Filter Aids for Bio-Sludge Deliquoring	548
<i>W. Li; C. Kiser; Q. Richard; T. Garrett</i>	
Tubular Cross-Flow Microfiltration and Brine Recovery in Ion Exchange Water Softening	567
<i>J. Shorr, I. Garden</i>	
Real World Experience to Replace DE Filtration	585
<i>Total Separations Solutions</i>	
Cooling Tower Blow Down Treatment & Recycle Utilizing Microfiltration & Reverse Osmosis	602
<i>J. Toohil</i>	
Ceramic Filtration of Fermentation Broths	629
<i>T. Grove</i>	

VOLUME 2

Procedure to Assess Integrity of Big Industrial Nanofiltration Systems (Drinking Water Facilities)	647
<i>C. Ventresque, G. Bablon, G. Changneau</i>	

Test Method for Laboratory Evaluation of Possible Adverse Effects of Water Treatment Membranes on Drinking Water Quality	675
<i>M. Boualam</i>	
An Overview of European Standard Methods Related to Drinking Water Filtration and Sewage Sludge Dehydration	690
<i>C. Peuchot, P. Ginisty</i>	
Ceramic Filtration of Oily Wastewaters: General Applications and Example from Industry	711
<i>G. Carlson</i>	
A Multi-Scale Model of Flow, Heat Transfer, and Chemical Reactions in a Diesel Particle Filter System	730
<i>W. Wangard, Y. Yi</i>	
Defined Characterisation of Filter Efficiency for Crankshaft Separators in the Laboratory and at the Engine	751
<i>M. Schmidt</i>	
Ceramic Fibrous Filter Media Incorporated with Palladium Oxide Particles	762
<i>S. J. Park, S. Bhargava, E. T. Bender, G. G. Chase, R. D. Ramsier</i>	
Effects of Fuel Sulfur Content and Dilution Conditions on Engine PM Emissions Under Transient Conditions	768
<i>Z. G. Liu, V. N. Vasys, T. A. Swor, D. R. Berg</i>	
New Tools to Manage Fluid Power System Cleanliness Requirements	771
<i>C. Peuchot</i>	
Cost of Cleaning (or not Cleaning) a Hydraulic System	797
<i>A. Vijlee</i>	
A Computational Model of Multipass Flat Sheet Hydraulic Filtration Testing	802
<i>N. Lifshutz</i>	
Proposed Revisions to Particle Counting Standards for Hydraulic Applications	814
<i>B. Verdegan</i>	
Conventional Pretreatment of SWRO is Advanced by Continuous Backwash Upflow Sand Filters	822
<i>B. Boyd, E. Latker</i>	
Gaining the Edge in Bioprocess Separation and Recovery: A Study in the Application of APD Centrifuge Technology	832
<i>D. G. Cybulski</i>	
Evaluation of Test Systems for Fractional Efficiency Testing	846
<i>M. Schmidt, S. Schutz</i>	
FlowCAM Continuous Imaging Fluid Particle Analyzer for Real-Time Monitoring and Research	856
<i>D. Palmund</i>	
Pore Structure Characteristics of a Filtration Cartridge Along its Length	873
<i>A. Jena, K. Gupta</i>	
A New Method to Determine Particulate Filtration Efficiency of Microfiltration Cartridges	883
<i>C. Peuchot</i>	
The Influence of Magnetic Fields on the Permeability of Filter Cakes	904
<i>C. Eichholz, M. Stolarski, B. Fuchs, H. Nirschl</i>	

Quantum Cascade Laser: A Tool for Trace Chemical Detection	914
<i>A. J. Evans, M. Razeghi</i>	
The Role of Filtration and Air Cleaning in Homeland Security	924
<i>H. E. Barney</i>	
Dirty Bomb Detection and Localization	983
<i>B. Kusy, G. Balogh, J. Sallai, A. Ledeczki, V. Protopopescu, J. Tolliver, M. Parang, F. Denap</i>	
Protecting Against Chemical Agents of War: Applying Internal Filtration	994
<i>C. O. Muller, W. B. M. Stanley</i>	
Unsteady-State Simulation of Nanoparticle Filtration Via Electrospun Nanofiber Webs at Reduced Operating Pressures	1014
<i>B. Maze, H. Vahedi Tafreshu, Q. Wang, B. Pourdeyhimi</i>	
Mechanical Sensors for Identifying Nano/Micro Particles	1019
<i>D. W. Dareing, T. Thundat</i>	
Robotic Sensor Networks for Plume Sampling and Tracking	1043
<i>R. Voyles</i>	
Improving Industrial Air Quality With Rotary Concentration	1066
<i>J. Stone</i>	
Spunlace HVAC Filter Media	1092
<i>S. Smith</i>	
Oxygen Enrichment of Air for Diesel Engines: A Process Evaluation Study	1109
<i>P. Chitta, B. J. Tatarchuk</i>	
"New Style" or "Established" Filter Media - How to Decide?	1117
<i>H-J. Imminger</i>	
Method for Characterization of Emulsification Properties of Diesel Fuels	1122
<i>C. M. Stanfel</i>	
Testing Anti-Microbial Effectiveness in Pool Filter Media	1136
<i>P. J. Angelini</i>	
Nanofiber Manufacturing Processes for Filtration Media	1147
<i>J. George</i>	
Understanding Test Methods ASHRAE 52.1-1992, 52.2-1999 and EN 779:2002	1157
<i>R. A. Singer</i>	
Filter Performance Under the Lique-Coated Particle Loading	1192
<i>T-C. Hsiao, D-R. Chen</i>	
History of Crankcase Ventilation Devices	1202
<i>J. Fedorowicz</i>	
Adsorption in Cabin Filtration: Major Correlations Between Activated Carbon Specification and Adsorption Performance of Combination Filter Elements	1221
<i>P. Trautmann, J. Sohnemann</i>	
Photocatalytic Filter System for the Decomposition of Hydro Carbons	1229
<i>T. Wolff, A. Kirsch, G. Kreisel</i>	
A New Concept for Simultaneous Redcution of Alkalinity, Oil and Undesirable Gases Such as CO2 and H2S	1238
<i>J. Chen, D. Douglas</i>	

Viscosity Reduction of Heavy Crude Oil Using Low-Frequency Acoustics 1247

K. B. Poosekar, R. W. Peters, D. E. Edgar, D. O. Johnson

Author Index