



The American Filtration and Separation Society presents the

9th World Filtration Congress

www.wfc9.org

April 18-22, 2004

PRELIMINARY TECHNICAL PROGRAM



Hyatt Regency Hotel
New Orleans, Louisiana, USA

Co-Sponsored by:



General Information

WFC9 offers a unique venue where experts from academia, industry, and others concerned with filtration and separation processes from all over the world meet and engage in technical presentations/discussions in oral and poster sessions, attend short courses and a two-day membrane workshop, and get updated on the latest equipment and technology on filtration and separation at a major exposition. The topics of the Congress reflect both established and emerging technologies that will be necessary in the new millennium to ensure the continued improvements in products and processes that will lead to an improved quality of life in many parts of the world. For spouses or family members accompanying delegates, there are events in and around historic New Orleans. The conference center, Hyatt Regency, is minutes away from the famous French Quarter, Jackson Square, Bourbon Street, Garden District, French Market, Mississippi River Steam Boat, Aquarium, and Lafayette Square.

WFC9 TECHNICAL PROGRAM

Multiple short courses covering Filtration Basics, Engine Filtration, Industrial Centrifugation Technology

Sunday April 18

Plenary lectures and 300 oral and poster presentations

Monday April 19 – Thursday April 22

Exposition

Monday April 19 – Wednesday April 21

Membrane Fundamentals and Applications Workshop*

Friday April 23

Membrane for Bioreseparation Workshop*

Saturday April 24

* Co-host with AIChE spring conference (at Hyatt hotel, New Orleans April 24-29, 2004), the 2-day workshop includes lectures, tabletop display from membrane suppliers, and open-forum discussion.

SHORT COURSES (Sunday April, 18)

Course 1 - Liquid Filtration Basic Outline

Introduction *Wu Chen*

Particle and Fluids Properties *Wu Chen*

Principles of Liquid Filtration *S. Chiang*

Liquid Filtration Equipment I *E. Mayer*

Liquid Filtration Equipment II *E. Mayer*

Membrane filtration, straining, equipment selection

Liquid Filtration Media *D. Krause*

Filter media types, materials of construction, selection

Filter Aid *A. Rosol*

Filter aid types, application, selection

Liquid Filter Performance, Testing and Standards *E. Mayer*

Evaluation of filter performance, troubleshooting and case study, testing methods

Practical Exercises I and II

Exercises will be given to participants to reinforce the lectures

Panel Discussion

Course 2 - Gas Filtration Basic Course Outline

Introduction *Wu Chen*

Particle and Fluids Properties *Wu Chen*

Principles of Gas Filtrations *K. Rubow*

Gas Filtration Media *K. Rubow*

Gas Filtration Equipment I *K. Choi*

Types of equipment, filter elements for gas filtration

Gas Filtration Equipment II *K. Choi*

Industrial and commercial applications, equipment selection criteria

Gas Filter Performance, Testing and Standards *T. Johnson*

Evaluation of filter performance, troubleshooting and case study, testing methods

Gas Filtration Design *K. Choi*

Unique attributes of gas filtration, ancillary operations, typical flow diagram, batch versus continuous filter operation, cost analysis

Panel Discussion

Lecturers:

Both academia and industrial engineers with rich experiences in filtration and separation will teach the filtration basic courses.

HOTEL RESERVATIONS

Rooms have been reserved at the Hyatt Regency Hotel for the 9th World Filtration Congress attendees at US\$177.00(single or double)/US\$187.00(triple)+ tax per night. In order to obtain the reduced rate, please make reservations before March 18, 2004 and mention WFC9. All attendees are requested to make reservations with the Hyatt Regency Hotel directly by phone: 1-504-561-1234, Fax: 1-504-587-4141 or mail to: Hyatt Regency Hotel, 500 Poydras Plaza, New Orleans, LA, 70113-1805, USA.

Course 3 - Motor Vehicle Filtration (Advanced course)

Course Description

The course includes four 2-hour major modules: engine air and cabin filtration, liquid filtration including oil, fuel, and coolant filtration, crankcase emission filtration and diesel engine emission reduction including after-treatment filtration. The course will focus on filtration needs, filtration models, filter design principles, filter performance and evaluation techniques. Each participant will receive all presentation on a CD-Rom disk.

Overview *T. Jaroszczyk*

Diesel Engine Filtration Needs *A. Pardue*

Engine Liquid Filtration *B. Verdegan*

Contrasting Liquid and Air Filters, Liquid Filter Testing, Lube Oil Filtration, Fuel Filtration, Coolant Filtration, Conclusion

CCV Filtration *A. Pardue*

Introduction, Crankcase emission regulations, Filter specifications and requirements, Design principles, Understanding filtration/ coalescing process, Design trends and barriers, Conclusions

Engine and Cabin Air Filtration *T. Jaroszczyk*

Introduction, Filter specifications and requirements, Filter design principles, Filter media selection, Laboratory and field evaluation of engine and cabin air filters, Understanding filtration/separation processes and models, Design trends and barriers, Conclusions

Diesel Engine Emission Reduction *J. Liu*

Introduction, Emission regulations overview, Emission characteristics and measurement, Emission test cycles, HC and CO control, PM reduction technology – EDOC, DPF, CSF, non-thermal plasma, NOx reduction technology – Lean NOx, non-thermal plasma, SCR, NAC, Conclusions

Course 4 - Industrial Centrifugation Technology (Advanced course)

Course Description

The purpose of the course is to review the various types of centrifuges available and their applications to users who are involved in solid/liquid separation. Centrifuges have been used in the process industries for separation, clarification, classification, degritting, thickening/concentration, deliquoring, washing and repulping. The course emphasizes concepts, principles, and applications so that participants can get a better grasp of the centrifuge technologies and how they can relate to their day-to-day experience on process separation. The course focuses on two main categories - sedimenting and filtering centrifuges - each of which can be operated batch-wise or continuously. Applications, selection and sizing of industrial centrifuges are discussed. Through the workshop, participants will gain practice on what they have learned in the lectures on their specific problems.

Course Outline (6 hour lecture and 1 hour workshop) Lecturer: Dr. Wallace Leung

Sedimenting Centrifuges: Principles, Batch and Continuous Types, and Applications - Centrifuge mechanics; centrifugal separation, clarification, classification; solids recovery efficiency; yield; polymer dosing; torque and speed; solids loading; spin tube; tubular; ultracentrifuge; disk; solid-bowl decanter. Applications cover thickening of sewage, cream/milk separation to dewatering of chemicals; classification and dewatering of fine minerals with micron-size particles, etc.

Filtering Centrifuges: Principles, Batch and Continuous Types, and Applications - Centrifugal drainage; cake washing; separation-and-repulping; wash ratio. Semi- and fully-automatic basket; cycle; peelers, siphons; inverting-filters. Applications cover from coarse bulk materials such as dewatering of flue-gas desulfurization waste and coal to high-value pharmaceuticals and chemicals.

Testing: Introduction to Bench, Pilot and Field Testing of Sedimenting and Filtering Centrifuges

Selection and Sizing

Troubleshooting and Optimization

Workshop: Each participant is invited to bring a problem related to centrifugal separation and filtration to the course for discussion.

For updated conference information, please visit: www.wfc9.org

General Information

MEMBRANE FUNDAMENTALS AND APPLICATIONS WORKSHOP

Friday, April 23

6-hour lecture and 1-hour panel discussion

Fundamentals of Membrane Separation

- Overview of different membrane separation processes RO, NF, UF, and MF; diafiltration, and pervaporation *E. Drioli, ITM-CNR, Italy*
- Characterization of Membranes *M. Nystrom, Lapp. Univ., Finland*
- Overview of membrane types, designs, modules, and systems
- Overview of inorganic membranes *E. Ma, WPI, USA*

Applications of Membrane Separation

- Beverage processing and integrated systems *E. Drioli, ITM-CNR, Italy*
- Water and wastewater treatment *R. Ben Aim, INSA, France*
- Wastewater treatment for pulp-and-paper including NF for acidic applications *M. Nystrom, Lapp. Univ., Finland*
- Hybrid membrane process/chemically enhanced membrane process with flocculation, adsorption, ion exchange *R. Ben Aim, INSA, France*
- Chemical and industrial applications – electronic materials, bio-chemicals *R. Collins, Dow Chemical, USA*
- Fouling and polarization control *M. Nystrom, Lapp. Univ., Finland*
- Application of membrane for fuel cell *E. Ma, WPI, USA*
- Other applications
- Membrane testing including integrity tests
- Selection of membranes (materials, design and modules) for various applications
- Pre-and post-membrane treatment

Panel Discussions (with all the lecturers)

- Address any specific questions, problems, technologies from the audience or from panellists

MEMBRANE FOR BIOSEPARATION WORKSHOP

Saturday, April 24

6-hour lecture and 1-hour panel discussion

Overview of bioseparations *A. Zydney, Penn State Univ., USA*

- Historical development
- Current applications in bioprocessing
- Current applications in biomedical engineering

Microfiltration *A. Zydney, Penn State Univ., USA*

- Cell harvesting and initial clarification
- Sterile filtration

Ultrafiltration *M. Nystrom, Lappeenranta Univ., Finland*

- Protein concentration
- Solvent removal and buffer exchange
- Virus removal
- Protein purification

Biomedical applications *M. Jaffrin, Univ. of Compiègne, France*

- Hemodialysis
- Plasmapheresis

Concentration polarization control in bioseparation applications (milk, effluent and biotech fluids; MF, UF, NF, and RO)

M. Jaffrin, Univ. of Compiègne, France

Industrial ultrafiltration systems for fermentation broth recovery

F. Kipnizki, Alfa-Laval, Denmark

Non-Filtration applications

- Membrane reactors/immobilized enzymes *L. Giorno, ITM-CNR, Italy*
- Membrane separation of enantiomers for pharmaceutical and agro-food ingredients *L. Giorno, ITM-CNR, Italy*
- Use of membrane chromatography in bioseparation *D. Pendlebury, Pall Corp., USA*
- Design of membrane systems for biotech/pharma process applications

Panel Discussions (with all the lecturers)

- Address any specific questions, problems, and technologies from the audience or from panellists

The workshop will be taught by a group of well-recognized international membrane experts from the North American Membrane Soc. and European Membrane Soc. to be balanced by lectures from industry and tabletop display from membrane suppliers. (If interested in tabletops, contact wallace.leung@bakerhughes.com or rmcollins@dow.com)

PLENARY LECTURERS

- * Membrane Separations for Process Intensification and Sustainable Growth, Prof. Enrico Drioli, Institute on Membrane Technology, ITM-CNR, Italy
- * Recent Development of Granular Filtration, Prof. Chi Tien, Syracuse University, USA
- * TBA, Dr. Mike Roco, National Science Foundation, USA

EXHIBITOR INFORMATION

This will be the largest filtration and separation event with attendance from more than 50 countries all around the world. We invite your company and organization to participate in the exposition to display your latest technologies and products. The booth sizes and rates for the expo are as follows:

Booth rates: 10 ft x 10 ft (10 m²)

AFS Corporate Members = US\$ 1,500.00

Non Members = US\$ 1,950.00

Booth rates: 10 ft x 20 ft (20 m²)

AFS Corporate Members = US\$ 2,475.00

Non Members = US\$ 3,295.00

A deposit of 50% of the full payment is required for all booth reservation. Make all payment to AFS - World Filtration Congress: c/o Judy Angelo, University of Pittsburgh, 1249 Benedum Hall, Pittsburgh, PA 15261, USA. Tel: 1-412-624-7440, Fax: 1-412-624-1480, Email: pcc@engr.pitt.edu. Make your booth reservation today.

If you would like to exhibit at the WFC9, please contact:

Wallace Leung
Bird Machine Co.
100 Neponset St
S. Walpole, MA 02071, USA
Wallace.leung@bakerhughes.com
wfleung@aol.com
Tel: 1-508-668-0400 x226
Fax: 1-508-668-6855

SPOUSE PROGRAM

- a) Fascinating Cemeteries and Churches of New Orleans** (8:00 - 12:00, Monday) *US \$25/ea.*
Much of New Orleans history can be discovered through her cemeteries and churches stories. Learn about the unique above ground burial system at St. Louis Number One Cemetery and effects and results of the disastrous yellow fever epidemic while visiting Our Lady of Guadeloupe. The history of the French Quarter will be reconstructed during a visit to the Ursuline Convent
- b) New Orleans Jazz History Tour** (13:00 - 16:00, Monday) *US \$35/ea.*
Today will be the day to learn about the history of jazz in New Orleans. Jazz is considered to be the only true American music genre. The tour begins at Louis Armstrong Park and includes admission to the U.S. Mint and Preservation Hall
- c) Garden District and Elms Mansion** (8:30 - 11:30, Tuesday) *US \$25/ea.*
The Garden District is the elegant residential district of New Orleans in contrast to bustling French Quarter. Discover the antebellum mansions and being the middle of spring the magnificent magnolias and other flowers in bloom. You will tour the Elms Mansion, a gracious home to several families as well as serving as the German Consulate between the two World Wars
- d) Historic New Orleans City Tour** (13:30 - 16:30, Tuesday) *US \$20/ea.*
In this bus tour you will be able to experience the complete history of New Orleans. You will visit the French Quarter; follow the crescent of the river to the old town of Carrollton. Pass by Tulane and Loyola Universities to Audobon Park. Complete your tour in the Garden District gazing at Greek revival architecture and splendid gardens.
- e) Cookin' in the Quarter** (10:00 - 13:30, Wednesday) *US \$45/ea.*
This is one of the most popular tours in New Orleans. Attend a creole/cajun cooking class and enjoy the results with a lunch. Chefs from celebrated restaurants conduct this class and prepare recipes and tips for you to take home so that you can re-create the Tastes of New Orleans.
- f) French Quarter Stroll** (14:30 - 16:30, Wednesday) *US \$20/ea.*
The best way to see the French Quarter is on foot. You will see examples of numerous architecture styles, and glimpse private courtyards. There are numerous historical stops and of course you will hear strains of jazz music throughout your tour.

For updated information, please visit: www.wfc9.org

Technical Program

Technical Sessions

SESSION 121: Monday, 13:15 - 14:30 GASFILTERTESTING

121-1
The Investigation of the Effects of Size Distributions of Particles Produced by Different Generators on Measured Efficiency of Filter Media, R. Vijayakumar, Lisa Andrews, Tim Mcdiarmid, Air Techniques International, USA

121-2
Relative Humidity Effect on the Filter Loading Characteristics, Eger Chase, Weijia Sun, Da-Ren Chen, Washington University in Saint Louis, USA

121-3
Optical Measurement of PM-Relevant Emissions, Joachim Binnig, Joerg Meyer, Gerhard Kasper, University Karlsruhe, GERMANY

SESSION 122: Monday, 13:15 - 14:30 LIQUID-LIQUIDSEPARATIONS

122-1
Microfiltration of Oil From Water on Slotted Pore Filters, Richard G Holdich, S.R., Kosvintsev, G. Mason, I.W. Cumming, Loughborough University, UNITED KINGDOM

122-2
Some Experience in Treating Produced Water on and off Shore With New Generation of Induced Gas Flotation Units - Case Histories, James Chen, Shaya Movafaghian, Petreco International Inc., USA

122-3
Study on a New Type of Coalescer in Oily Water Treatment, Yawen Lu, BCB Filtration Technology Co. Ltd., CHINA

SESSION 123: Monday, 13:15 - 14:30 IMAGING TECHNIQUES

123-1
Investigation of the Surface Treatment and the Dust Clogging Behavior of Cleanable Needle Felts by Image Analysis, Wilhelm Hoflinger, Gerd Mauschwitz, Wolfgang Koschutnig, Vienna University of Technology, AUSTRIA

123-2
MRI Quantitation of Filtration and Separation For Clinical Medicine and Industry, Laurie Hall, Frank Heese, University of Cambridge School of Medicine, UNITED KINGDOM

123-3
Fibrous Filters: Non-Invasive Determination of Local 3d Fiber Structure by MRI, Martin J. Lehmann, Edme H. Hardy, Gerhard Kasper, University Karlsruhe, GERMANY

SESSION 124: Monday, 13:15 - 14:30 CFDSIMULATION 1

124-1
Loading Fibrous Filters: CFD Simulation of Pressure Drop and Collection Efficiency Based on CLSM Visualization of Loaded Single Fibers, Stefan Schollmeier, Martin J. Lehmann, Jörg Meyer, Gerhard Kasper, University Karlsruhe, GERMANY

124-2
Numerical Simulation of the Filtration and Regeneration in Diesel Particulate Traps, Timo Deuschle, Uwe Janoske, Manfred Piesche, University of Stuttgart, GERMANY

124-3
Finite Element Modelling of Flow of Non-Newtonian Fluids in Pleated Cartridge Filters, V. Nassehei, W.R. Ruziwa, N.S. Hanspal, R.J. Wakeman, Loughborough University, UNITED KINGDOM

SESSION 125: Monday, 13:15 - 14:30 FILTRATIONAPPLICATIONS 1

125-1
Evaluation of Different Primary Filtering Media in Rotary Vacuum Drum Filters For Sugar-Cane Mud, Walter Luiz Polonio, Eliete Maria Gonçalves, Paulo Cezar Razuk, UNESP, BRAZIL

125-2
Dependence of Saccharomyces Serevisiae Filtration Through Membrane on Yeast Concentration, M. Mota, J.A. Teixeira, A. Yelshin, University of Minho, PORTUGAL

125-3
Exchange Process Study of Rare Earth Ion With Nay Zeolite Filter Cake on a Vacuum Belt Filter, Yuelong Ma, Zhijian Da, Mingyuan He, Jinghui Deng, Research Institute of Petroleum Processing, CHINA

SESSION 126: Monday, 13:15 - 14:30 ADVANCESINFILTER MEDIA 1

126-1
Multicomponent Fiber Technology For Filtration & Other Applications, John F. Hagewood, Hills, Inc., USA

126-2
Control of Fiber Orientation in Non-Woven Media by Electric Field, G.G. Chase, A.R. Patel, University of Akron, USA

126-3
Cartridge Liquid Filtration: a Theoretical Approach For Dynamic Clogging in An Elementary Pleat, K. Benmacchou, P. Schmitz, Institut De Mécanique Des Fluides De Toulouse, FRANCE; M. Meireles, Laboratoire De Génie Chimique De Toulouse, FRANCE

SESSION 131: Monday, 14:50 - 16:30 INDOOR AIR

131-1
The Role of Filtration Efficiency in Maintaining HVAC System Cleanliness, H.E. Burroughs, Building Wellness Consultancy, Inc., USA

131-2
Influence of Operating Conditions and Media Type on the Emissions of Surface Filters, Joachim Binnig, Joerg Meyer, Gerhard Kasper, University Karlsruhe, GERMANY

131-3
Air Filter Performance Certification – An Assessment of the Truth, Robert B. Burkhead, Blue Heaven Enterprises, USA

131-4
Laboratory Performance Comparison of indoor Air Cleaners, Tsung-Shi Lin, Ro-Ting Lin, Chih-Chieh Chen, Yu-Mei Kuo, NTU, R.O.C.

SESSION 132: Monday, 14:50 - 16:30 TOPICS IN REVERSE OSMOSIS

132-1
Control of Residual Aluminium From Conventional Treatment To Improve Reverse Osmosis Performance, C. Gabelich, Fredrick W. Geringer, Ray Evangelista, Minhaal Kalyan, Metropolitan Water District of Southern California, USA

132-2
Antagonistic Reactions With Potable-Water Production Chemicals and Polyamide Membranes, C. Gabelich, Kenneth P. Ishida, Richard Bold, Don Phipps, Metropolitan Water District of Southern California, USA

132-3
Physical Conditions For Enhanced Seawater Desalination by Reverse Osmosis, S. Judd, Katherine Harris, Cranfield University, UNITED KINGDOM

132-4
Numerical Simulation of the Effects of Spacers on Concentration Polarization in Spiral Wound Reverse Osmosis Modules, Shengwei Ma, Lianfa Song, Say Leong ong, Wun Jern Ng, National University of Singapore, SINGAPORE

SESSION 133: Monday, 14:50 - 16:30 TOMOGRAPHYMEASUREMENTTECHNIQUES

133-1
Monitoring of Production Pressure Filters Using Electrical Tomography, Trevor York, Luca Ruffino, John Davidson, Reg Mann, Bruce Grieve, University of Manchester Institute of Science and Technology, UNITED KINGDOM

133-2
Non Woven Characterisation Using X-Ray Microtomography, J.-F. Bloch, X. Thibault, Ecole Francais De Papeterie Et Des industries Graphique, FRANCE

133-3
Description of Floc Structure and its Impact on Cake Filtration and Sedimentation, Gtz Bickert, J.Y.H. Liao, R. Amal, G. Bushell, UNSW, AUSTRALIA

133-4
Paper Structure Characterisation Using X-Ray Microtomography, J.-F. Bloch, Ecole Francais De Papeterie Et Des industries Graphiques, FRANCE

SESSION 134: Monday, 14:50 - 16:30 CFDSIMULATION 2

134-1
Modelling of Coagulation Process in Disk Stack Centrifuges by Using the Method of Population Balances, M. Breiting, S. Schütz, M. Piesche, University of Stuttgart, GERMANY

134-2
Clogging of Fibrous Filters: CFD Simulation of Transient Particulate Build-Up on Single Fiber Arrangements, Martin J. Lehmann, Gerhard Kasper, University Karlsruhe, GERMANY

134-3
Modelling of Flow and Particulate Collection in Complex Filtration Devices: A Change of Scale Approach, L. Oxarango, P. Schmitz, M. Quintard, Institut De Mécanique Des Fluides De Toulouse, FRANCE

134-4
Analytical, Numerical and Experimental Investigation of Initial Retention Efficiencies in Fibrous Oil Filter Media, Banzhaf Harald, Piesche Manfred, University of Stuttgart, GERMANY; Klein Gunnar-Marcel, Durst Michael, Filterwerk Mann+Hummel GmbH – Ludwigsburg, GERMANY

SESSION 135: Monday, 14:50 - 16:30 CAKEFILTRATIONAPPLICATIONS

135-1
Pressure Filtration of Crystallized Sulfathiazole: The Influence of Cooling Policy Used in Batch Cooling Crystallization, Antti Häkkinen, Kati Pöllänen, Marjatta Louhi-Kultanen, Lars Nyström, Lappeenranta University of Technology, FINLAND

135-2
Improvement Potential and Feasibility of the Continuous Steam Pressure Filtration – An Analysis of Industrial Experiences, Reinhard Bott, Thomas Langeloh, BOKELA GmbH, GERMANY

135-3
Effect of Dissolved Polysaccharides on Permeability of Mud-Cake Produced During Drilling Operation, J.A. Sorrentino, M.L. Alonso, S. Valentino, L. Lezama, Universidad Central De Venezuela, VENEZUELA

135-4
The Development of Enclosed Automatic Vacuum/Pressure Filter, Lihong Do, Bohu Deng, Shanghai Research Institute of Chemical industry, CHINA

Technical Program

SESSION 136: Monday, 14:50 - 16:30 ADVANCES IN FILTER MEDIA 2

136-1
The Next Generation of Filtration Technology, David Paulson, GE Osmonics, USA

136-2
Practical Aspects of Filtration With Fine Polymeric Fibers, Jonathon George, Tiziana Cravero, Roberto Fornà, Ahlstrom Turin, Spa, ITALY

136-3
Sophisticated Spunlacing Process For Advanced Filtration, Rick Pearce, Ping Hao, Polymer Group, Inc., USA

136-4
Techniques For Quantifying Particle Retention, Frank H. Cousart, J Ramsay, L. Simon, Ahlstrom, USA

POSTER SESSION 141: Monday, 16:45 - 18:30 MISCELLANEOUS TOPICS IN FILTRATION

141-1
Recent Advances in Filter Efficiency Test Methods For Electret Filters and Electronic Air Cleaners, James T. Hanley, M. Kathleen Owen, Deborah L. Franke, David S. Ensor, RTI international, USA; Leslie E. Sparks, U.S. Environmental Protection Agency, USA

141-2
Hybrid Type Particulate Collector Combining a Fabric Filtration and Centrifugal Dust Removal Technology, Sang-Do Kim, J.E. Son, Y.O. Park, Korea Institute of Energy Research, KOREA; Y. Kang, Chungnam National University, KOREA

141-3
Measurements For the Determination of the Emissivity of Cutting Fluids As a Primary Measure To the Risk Avoidance in Metal Processing Companies, Wilhelm Hoflinger, Vienna Bernhard Neumann, Gerd Mauschwitz, Vienna University of Technology, AUSTRIA

141-4
Inorganic Membranes Made of Sintered Clay For a Fermentation-Crossflow Microfiltration Coupling Process, J. Bentama, K. Ouazzani, High School of Technology, MOROCCO; P. Schmitz, Institut De Mécanique Des Fluides, FRANCE; A.M. Ayadi, National School Engineers of Sfax, TUNISIA

141-5
Extraction of Zn(II) by Supported Liquid Membrane Containing D2EHPA, M.T. Draa, S. Bey, M. Benamor, Ecole Polytechnique Montreal Canada, CANADA

141-6
Theoretical Study of the Electrokinetic Behaviors Through Asymmetric Membrane Pores and Cake-Membrane in Series, Ching-Jung Chuang, H.J. Hsu, Y.C. Chiang, Chung Yuan University, R.O.C.

141-7
Application of Electro-Microfiltration For Treatment of Water Containing Humic Substances, Yu-Hsiang Weng, Kung-Cheh Li, National Taiwan University, R.O.C.

141-8
Study on the Preparation of Filtration Sheet Using Wetting Method With Wood and Basalt Fibers, Performance and Pore Structures, Guang Jian Wang, De-Ku Shang, Lin-Na Hu, Zhen-Hua Guo, Juan Yin, Ya-Jie Guo, Hebei University of Technology, CHINA

141-9
The Synergy of Media Structure and Charge Distribution in a Commercial HVAC Filtration Media, David Myers, B. Dean Arnold, Kimberly-Clark Corporation, USA; Joachim Hillenbrand, Gerhard M. Sessler, Technical University of Darmstadt, GERMANY

POSTER SESSION 142: Monday, 16:45 - 18:30 LIQUID-LIQUID SEPARATIONS

142-1
Filtration-Coalescence of a Metalworking Fluid Using Glass Fiber Beds, Jose M. Benito, G. Rios, E. Fernandes, C. Pazos, J. Coca, University of Oviedo, SPAIN

142-2
A Novel Coalescing Separator For Oily Water Treatment, Wei Jiang, Tianzhu industrial Development Zone, CHINA

142-3
Research and Development of Hydrophilic/Hydrophobic Composite Membrane For Oil-Water Separation, Liang-Yin Chu, Shu Wang, Wen-Mei Chen, Yan Li, Xin-Cai Xiao, Sichuan University, CHINA

142-4
Treatment of Oily Wastewaters by Deep Bed Filtration Using Peat As Filter Media, Pelayo Suarez, A. Cambella, J.M. Benito, E. Fernandez, C. Pazos, J. Coca, University of Oviedo, SPAIN

142-5
Removal of Oil From the Condensation Water Using a Coalescer System, Yawen Lu, BCB Filtration Technology Co. Ltd., CHINA

142-6
Comparisons of Different Measuring Methods For the Oil Content in the Water, Yawen Lu, BCB Filtration Technology Co. Ltd., CHINA

142-7
Overview of the Membrane Application in the Oil-Field Return Water Treatment, Yawen Lu, BCB Filtration Technology Co. Ltd., CHINA

POSTER SESSION 143: Monday, 16:45 - 18:30 MEMBRANE APPLICATIONS

143-1
Nano Silica Removal From IC Wastewater by Pre-Coagulation and Microfiltration Process, Chihpin Huang, Wanhao Jiang, Chiahsin Chen, NCTU, R.O.C.

143-2
Extraction of Amino Acids From Aqueous Solution by Micellar Ultrafiltration, Jose Manuel Benito, D. Dominguez, M. O. Ruiz, J. L. Cabezas, I. Escudero, University of Bugros, SPAIN

143-3
Optimization of Recovering of Ananas Comosus Bromelain in Plain Membrane System, R.R. Souza, J.B. Severo Jr., I.M.B.D. Bispo, DEQ – CCET – UFS, BRAZIL; F.L.G. Lopes, J.C.C. Santana, E.B. Tambourgui, FEQ – UNICAMP, BRAZIL

143-4
Study of the influence of Ph and Transmembrane Pressure in the Recovery of the Enzyme Bromelain Using Flat Membrane, F.L.G. Lopes, J.C.C. Santana, E.B. Tambourgui, DESQ – FEQ – UNICAMP, BRAZIL; J.B. Severo Júnior, I.M.B.D. Bispo, DEQ – CCET – UFS, BRAZIL; R.R. Souza, DEQ – CCET – UFS, BRAZIL

143-5
Effect of Activated Carbon on Membrane Filtration of Activated Sludge, Herbert H.P. Fang, Tong Zhang, Xinlong Shi, The University of Hong Kong, CHINA

143-6
Application of Submerged Non-Woven Fabric Membrane Bioreactor to Treatment at the Wastewater From Food Industry, Min-Chao Chang, W.Y. Tzou, Y.J. Hu, W.K. Chan, CESH/ITRI, R.O.C.

143-7
Mechanisms of Flux Decline During Crossflow Microfiltration of Complex Microbial Suspensions, G. Foley, A.A. McCarthy, P.K. Walsh, Dublin City University, IRELAND

143-8
Preparation of Nanoparticles With a New Membrane Reactor, C. Charcosset, H. Fessi, Laboratoire d'Automatique et de Génie des Procédés, FRANCE

143-9
Comparison of Microporous Membrane Morphologies by Confocal Scanning Laser Microscopy, Catherine Charcosset, Laboratoire d'Automatique et de Génie des Procédés, FRANCE, Jean-Claude Bernengo, UCB Lyon 1, FRANCE

POSTER SESSION 144: Monday, 16:45 - 18:30 FILTRATION MODELING

144-1
Unconventionally Modeling Analysis For Permeate Flux of Ultrafiltration in Hollow-Fiber Modules, Ho-Ming Yeh, Tamkang University, R.O.C.

144-2
Research of Mathematics Model on Collection Efficiency of Fibrous Filters, Hai-Ming Fu, Henggen Shen, Donghua University, CHINA

144-3
Optimization of the Solid-Liquid Separation on Filtering Hydrocyclones, M.A.S. Barrozo Barrozo, E.B. Arruda, L.G.M. Vieira, M.C. Alves, J.J.R. Damasceno, Federal University of Uberlândia, BRAZIL

144-4
Mathematical Modelling of Nonlinear Hydrodynamics in Filtration Process, R.I. Ibjatov, L.P. Kholpanov, F.G. Akhmadiev, R.R. Fazilyanov, KSABA, RUSSIA

144-5
A Mathematical Model For the Process of Ultra-Thin Electro-Kinetic Filtration, L.P. Khoponov, E.E. Zaporozhcz, Yu.P. Kvurt, Russian Academy of Sciences, RUSSIA; P. Vlasak, Czech Academy Of Sciences, CZECH REPUBLIC

144-6
Artificial Neural Networks Model For Precoat Layers Build-Up Under Crossflow Condition, Xiao-Zhong Li, Sichuan University, CHINA; Harald Hess, Wilhelm Höflinger, Vienna University of Technology, AUSTRIA

144-7
CFD Analysis and Experimental Visualization on Fluid Flow Through Deformable Gel Particles Bed, Kuo-Lun Tung, Chung Yuan University, R.O.C.; Wei-Ming Lu, National Taiwan University, R.O.C.

144-8
Numerical Simulation of Extended Surface Rigid Cell Filters, Paolo Tronville, Riccardo Sala, Polytechnic of Turin (DENER), ITALY

144-9
Theoretical and Practical Study of intelligence Compound Filtration, Wei Tan, Qixin ZHU, Yuntao WU, Tianjin University, CHINA

POSTER SESSION 145: Monday, 16:45 - 18:30 TOPICS IN LIQUID FILTRATION

145-1
Study of the Performance of Demco Filtering Hydrocyclone, M.A.S. Barrozo, E.B. Arruda, L.G.M. Vieira, M.C. Alves, J.J.R. Damasceno, Federal University of Uberlândia, BRAZIL

145-2
Study on the Application of BP Neural Network in Hydrocyclones For Oil-Water Separation, Zhaohui Shu, Wenmei Chen, Liangyin Chu, Huazhong University of Science and Technology, CHINA

145-3
Predicting the Grade Efficiency of Hydrocyclones For Oil-Water Separation with Monte Carlo Simulation, Zhaohui Shu, Wenmei Chen, Liangyin Chu, Jian Li, Huazhong Univ. of Sci. & Tech., CHINA

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145-4

Laser Granulometer and It's Application in Hydrocyclones For Oil-Water Separation, Zhaohui Shu, Wenmei Chen, Liangyin Chu, Huazhong University of Science and Technology, CHINA

145-5

Flow Field and Separation Performance of Modified Hydrocyclones, Liang-Yin Chu, Yang Zhao, Wei Yu, Xian-Tao Zhou, Guang-Jin Wang, Wen-Mei Chen, Yu-Liang Liu, Sichuan University, CHINA

145-6

Analysis of Boric Acid in Aquatic Environments by Concentration Method Using Adsorption Column, A. Fujimoto, Osaka Prefecture University, JAPAN; Toyoaki Aoki, Biwako Seikei Sport College, JAPAN

145-7

New Methods of Validating Filtration Materials by Using Polymer Microspheres, Jeffery D. Silva, Stanley D. Duke, Duke Scientific Corporation, USA

145-8

Research of New Filter Granular Recyclable Media in Wine Filtration, Caroline Boittelle, Martine Mietton-Peuchot, Universite Victor Segalen Bordeaux II, FRANCE

145-9

A Case Study of RVPF Filtration of Waste Sludge Using Organic Filter Aids, Larry Galberd, J. Rettenmaier USALP, USA

145-10

Optimising Precoat Usage on a Rotary Drum Vacuum Filter, Andrew Walker, Filtration Services, Ltd., UNITED KINGDOM

POSTER SESSION 146: Monday, 16:45 - 18:30 APPLICATIONS IN LIQUID-PARTICLE SEPARATIONS

146-1

Apply of the New High Efficiency Fiber Bundles Filtering Tank, Haining Liu, Yongjun Xue, Northeast Institute of Electric Power Engineering, CHINA

146-2

The Performance and industrial Application of Self-Cleaning Reservoir, Yongqiang Xu, BCB Filtration Technology Co. Ltd., USA

146-3

Effect of Recycling the Filter Backwash on Pulsator Clarifier's Behaviour - A Case Study, P.N. Ravindra, Bangalore Water Supply and Sewerage Board, INDIA

146-4

Electrofiltration of Kaolin Suspension With Sedimentation, O. Larue, E. Vorobiev, Université De Technologie De Compiègne, FRANCE

146-5

Modelling of Specific Cake Resistance of Tapioca Starch, Terdthai Vatanatham, Junjira Plumchai, Kasetsart University, THAILAND

146-6

The Impact of "Particle Size" on Filtration and Separation, Terry Redman, P. Barrett, J. Ward, Lasentec, USA

146-7

Shortening the Drying Time by a New Drying Method For Mass Deacidified Newspapers and Books, R. Edl, W. Höflinger, Vienna University of Technology, AUSTRIA; W. Ruhm, Austrian National Library, AUSTRIA

146-8

Measuring Local Concentrations in Slurries Flowing in Horizontal Channels, Yu. P. Kvurt, Z. Chara, P. Vlasak, L.P. Kholpanov, Russian Academy of Sciences, RUSSIA

SESSION 211: Tuesday, 8:30 - 10:35 MEDIA FOR HIGH TEMPERATURE APPLICATIONS

211-1

Hot Gas Filtration Using Sintered Metal Fiber Filters, Ken Rubow, Mott Corporation, USA; Y. Struyve, Bekaert Fiber Technologies, BELGIUM

211-2

Candle Filter Testing in Coal Gasification Operations, Ruth Ann Martin, Xiaofeng Guan, Ben Gardner, Southern Company Services, USA; Jack D. Spain, Southern Research Institute, USA

211-3

Nano-Fiber Enhanced, High Temperature Resistant Filter Media, George G. Chase, Lubna Khatri, Prathyusha Katta, Rex D. Ramsier, University of Akron, USA

211-4

High Temperature Pleated Filtration Media, Scott Hunter, BGF Industries, USA; A. Smithies, BHA Inc., USA

211-5

Comparisons Between Filtration Behavior and Thermo-Analytical Properties of Different Coal Fly Ashes at High Temperature, Detlev Hoff, Gerhard Kasper, Universität Karlsruhe, GERMANY

SESSION 212: Tuesday, 8:30 - 10:35 APPLICATIONS IN MEMBRANES

212-1

Purification of alpha-Lactalbumin and beta-Lactoglobulin From Whey Protein Isolate Using Two-Stage Ultrafiltration Systems, Andrew L. Zydney, Beelin Cheang, Pennsylvania State Univ., USA

212-2

Composite Pd and Pd/Alloy Porous Stainless Steel Membranes For Fuel Cell Applications, Yi Hua Ma, Ivan P. Mardilovich, Erik E. Engwall, Worcester Polytechnic Institute, USA

212-3

Practical Examples Showing the Benefits of Ceramic Membranes For the Fruit Juice Industry, Peter Bolduan, Atech Innovations GMBH, GERMANY

212-4

High Temperature Application of Spiral Wound Modules For UF and NF, Frank Lipnizki, Alfa Laval Nakskov A/S, DENMARK; Gun Trägårdh, Lund University, SWEDEN

212-5

An Experimental Research on Dealcoholization of Alcoholic Beverages by Pervaporation, Zeyi Xiao, Shujuan Tan, Zhibing Zhang, Lei Li, Fawen Wu, Zhihong Xu, Nanjing University, CHINA

SESSION 213: Tuesday, 8:30 - 10:35 NOVEL METHODS IN WASTEWATER TREATMENT

213-1

Combined Technology Treatment For Difficult Wastewaters, Steve W. Rose, Oberlin Filter, Co., USA; Roy Rieber, Traclana LLC, USA; Ernest Mayer, Dupont, USA

213-2

Innovative Deep Bed Filter For the Tertiary Treatment of Wastewater, Roger Ben Aim, LIPE/INSA, FRANCE; Jiwon KIM, Nanoentech, KOREA; Hae Jin WOO, University of Pusan, KOREA

213-3

Modular Platform For Laundry Wastewater Recycling Based on the MBR Concept, Chris Dotremont, H.D. Wever, I. Genne, B. Molenberghs, E Van Hoof, Vito, BELGIUM

213-4

Treatment of Agricultural Wastewater Using Ultrafiltration and Subsequent Reverse Osmosis, Winfried Reimann, Institute of Agricultural Engineering, GERMANY

213-5

A Research Study on Chromium Removal From Electroplating Wastewater Using Chemically Treated Zeolite, Tonni Agustiono Kurniawan, Sandhya Babel, Thammasat University, THAILAND

SESSION 214: Tuesday, 8:30 - 10:35 CAKE FILTRATION - FUNDAMENTALS

214-1

Determination of Local Filtration Properties, Hans Theliander, Christian Johansson, Chalmers University of Technology, SWEDEN

214-2

Basic Compressibility Parameters and their Time/Temperature Dependency During the Deformation of Saturated Porous Materials Involving Multitude Compression and Drainage, Serge Reboulliant, Dominique Leclerc, Laboratoire Des Sciences Du Génie Chimique, FRANCE; Oswaldo Campanella, Purdue University, USA

214-3

Influence of Non-Aqueous Solvents on Cake Structure and Properties, Urs a. Peuker, Institut Fur Chemische Verfahrenstechnik, GERMANY

214-4

Determination of Cake Structure During Stepped and Variable Pressure Filtrations, ES Tarleton, Loughborough University, UNITED KINGDOM

214-5

Numerical Analysis of Cake Filtration, Chi Tien, Renbi Bai, Syracuse University, USA

SESSION 215: Tuesday, 8:30 - 10:35 FIELD ENHANCED FILTRATIONS I

215-1

Pressure Electrofiltration - An innovative Process For the Industrial Biopolymer Recovery, Ralph Hofmann, Clemens Posten, Universität Karlsruhe, GERMANY

215-2

Aqueous Extraction and Separation of Linseed Press-Cake Components Enhanced by High Voltage Electrical Discharges, C. Gros, J.-L. Lanoisellé, E. Vorobiev, Université De Technologie De Compiègne, FRANCE

215-3

Stages of Constant Pressure and Constant Rate Solid-Liquid Expression Enhanced by Pulsed Electric Field, E. Vorobiev, N. Lebovka, I. Praporscic, V. Muravetchi, Université De Technologie De Compiègne, FRANCE

215-4

Pressure Electrofiltration as a Tool of Bioseparation - Process Simulation and Optimisation, Ralph Hofmann, Clemens Posten, Universitat of Karlsruhe, GERMANY

215-5

Electrowashing Filter Cakes: Experiments & Modelling Concepts, RJ Wakeman, E.S. Tarleton, Loughborough University, UNITED KINGDOM; M.A. Koenders, Kingston University, UNITED KINGDOM

SESSION 216: Tuesday, 8:30 - 10:35 SEDIMENTATION PROCESSES

216-1

Software For The Simulation Of Batch And Continuous Thickeners, Ronald Burgos, Fernando Concha, University of Concepción, CHILE

216-2

Most Advanced Washing Out of Suspended Particles - The Innovative Sedimentator, Reinhard Bott, Thomas Langeloh, BOKELA Gmbh, GERMANY

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216-3

The Influence of the Physico-Chemical Conditions on the Sedimentation Behavior of Fine Grained Particles, Marc Beiser, Werner Stahl, Universitait Karlsruhe, GERMANY

216-4

The Role of Primary Particle Size in the Kinetics of Aggregated System Separation, Lech Gmachowski, Institute of Physical Chemistry, POLAND

216-5

A New Approach To Denser Aggregates, Jirun Xu, Dalian Yuxin Zhang, Haiyan Xu, Zhengning Liu, Dalian University, CHINA

SESSION 221: Tuesday, 13:15 - 14:30
NEW MEDIA FOR GAS FILTRATION

221-1

Combined Filtration Vocs/Particles on Innovative Fibrous Filter Media, C. Lorimier, L. Le Coq, A. Subrenat, P. Le Cloirec, Ecole Des Mines De Nantes, FRANCE

221-2

Loft Air Filtration Media by Newly Designed Meltblown Die, Kyung-Ju Choi, AAF International, USA

221-3

New Ceramic Filter Elements Combining the Latest Developments in Strength, and Fibre Systems to Set Enhanced Standards in Gas Cleaning Technology, G. Elliott, R. Allen, D. Akerman, Madison Filter Ltd., UNITED KINGDOM

SESSION 222: Tuesday, 13:15 - 14:30
MEMBRANE NANOFILTRATION

222-1

The Assessment of Materials For Cross Flow Nanofiltration of Organic/Organic Liquids and Developing Scale-Up Options, C.R. Millington, A. Nijmeijer, Shell Global Solutions International BV, THE NETHERLANDS; J.P. Robinson, E.S. Tarleton, Loughborough University, UNITED KINGDOM

222-2

Effect of Swelling in Non-Aqueous Nanofiltration With Polydimethylsiloxane, J.P. Robinson, E.S. Tarleton, Loughborough University, UNITED KINGDOM; C.R. Millington, A. Nijmeijer, Shell Global Solutions International BV, NETHERLANDS

222-3

Introduction of Nanofiltration in a Production Process of Fermented Organic Acids, A. Bouchoux, H. Roux-De Balmain, F. Lutin, Université Paul Sabatier, FRANCE

SESSION 223: Tuesday, 13:15 - 14:30
TOPICS IN WATER/WASTEWATER TREATMENT

223-1

Recent Developments on Double Filtration For Water Treatment, Luiz Di Bernardo, Angela Di Bernardo, Emilia Kiyomy Kuroda, Giovana Katie Wiecheteck, Bianca Dieile Da Silva Benini, University of Sao Paulo, BRAZIL

223-2

Treating High-Turbidity Storm Water Using Full-Scale Flocculation Blanket Clarifiers, D.J. Lee, S.S. Sung, L.C. Chen, W.W. Lin, H.Y. Chung, C.C. Wang, R.M. Wu, National Taiwan University, R.O.C.; Chihpin Huang, National Chiao Tung University, R.O.C.; R. S. Juang, Yuan Ze University, R.O.C.; X. F. Peng, Tsinghua University, CHINA; His-Lih Chang, Taiwan Water Supply Corporation, R.O.C.

223-3

Water and Wastewater Treatment, Using Solar Energy, Wai on Leung, Waste & Environmental Technologies Ltd., CHINA

SESSION 224: Tuesday, 13:15 - 14:30
CAKE FILTRATION-FLOCCULATION

224-1

Filtration of Activated Sludge, Ismail Tosun, Hande Yukseler, Ulku Yetis, Middle East Technical University, TURKEY

224-2

Development of Industrially Relevant Test Methods For Belt-Press Filtration, Sarah A. Miller, CSIRO Energy Technology, AUSTRALIA

224-3

Which Flocc Properties Better Run a Membrane Filtration Operation?, Martine Meireles, J.B. Madeline, Université Paul Sabatier, FRANCE; B. Cabane, Ecole Supérieure De Physique Et Chimie, FRANCE

SESSION 225: Tuesday, 13:15 - 14:30
SEPARATIONS IN PAPER MAKING

225-1

Analysis the Sheet Formation Kinetics on the Wet Part of Papermachines, Jean-Claude Roux, Ecole Française De Papeterie Et Des Industries Graphiques, FRANCE

225-2

Filtration Properties of Green Liquor Dregs, Marja Oja, Irina Niinivaara, Helsinki University of Technology, FINLAND

SESSION 226: Tuesday, 13:15 - 14:30
MEDIA CHARACTERIZATION BY POROMETRY

226-1

Filter Cloth Blinding/Cake Release Assessment Via Porometry Measurements, Ernest Mayer, Dupont, USA

226-2

Comparative Methods For the Pore Size Distribution of Woven and Metal Filter Media, Richard Lydon, Madison Filter Group, Ltd., UNITED KINGDOM; Kevin J. Gagen, Madison Filter, Inc., USA; Ernest Mayer, DuPont, USA, Graham R. Rideal, Whitehouse Scientific, Ltd., UNITED KINGDOM

226-3

Characterization of Nanofiber Filtration Media by Capillary Flow Porometry, Krishna Gupta, A. JENA, Porous Materials, Inc, USA

SESSION 231: Tuesday, 14:50 - 16:30
TOPICS IN GAS FILTRATION 1

231-1

Influence of Cleaning Parameters on Pulse-Jet Filter Bag Performance, X. Simon, Lab For Aerosol Filtration, FRANCE; S. Callé, D. Thomas, LSGC-CNRS, FRANCE; D. Bémer, R. Régnier, INRS, FRANCE

231-2

High Efficiency Process - Automates HEPA Assembly, Jerry Drake, Fabio Okada, Liquid Control Corp., USA

231-3

The Study of Impinging Stream in Trapping Dust, Jianwei Zhang, Heping Zhang, Shenyang Institute of Chemical Technology, CHINA

231-4

The Influence of Pleat Geometry on the Pressure Drop in Deep-Pleat Cassette Filters, Thomas Caesar, Thomas Schroth, Freudenberg Vliesstoffe KG, GERMANY

SESSION 232: Tuesday, 14:50 - 16:30
MEMBRANE ULTRAFILTRATION

232-1

Effects of Electrostatic Interactions on Small Molecule Clearance in Ultrafiltration, Andrew Zydney, Jiahui Shao, Pennsylvania State University, USA

232-2

Lignin Extraction From Kraft Black Liquor by Ultrafiltration, Ann-Sofi Jonsson, Ola Wallberg, Lund University, SWEDEN

232-3

Fiber Filtration An Alternative For UF, I.R. Frans De Vreede, The St. Nederlandse Filtratie Society, THE NETHERLANDS

232-4

Effect of Addition of Bovine Serum Albumin on Ultrafiltration of Corynebacterium Glutamicum Slurry, Kazushige Ohmori, Eiji Iritani, Nagoya University, JAPAN

SESSION 233: Tuesday, 14:50 - 16:30
MEMBRANES IN WATER/WASTEWATER TREATMENT 1

233-1

Impact of Membrane Process on the Characteristics of Bioreactors For Wastewater Treatment, Bruce Jefferson, Stewart Smith, Tom Stephenson, Simon Judd, Cranfield University, UNITED KINGDOM

233-2

Performance of a Submerged Membrane Bioreactor With a Total Solids Retention, J.C. Orantes, C. Wisniewski, M. Héran, A. Grasmick, Université De Montpellier, FRANCE

233-3

Biofiltration in Municipal Wastewater Treatment-Operational Experience Gained With a Benchmarking Process, Matthias Barjenbruch, University of Rostock, GERMANY

233-4

Study of the Sequence Filtration-Relaxation-Backflushing To Prevent Membrane Fouling in a Submerged Membrane Bioreactor, Kaam R. Van, M.E. Hernandez Rojas, S. Schetrite, O. Lorain Albasi C., Laboratoire De Génie Chimique, FRANCE

SESSION 234: Tuesday, 14:50 - 16:30
DECANTER CENTRIFUGE TECHNOLOGY

234-1

New Decanter Centrifuge Technology For Improved Separation and High Throughput, Wallace Leung, Bird Machine Company, USA

234-2

Deliquoring of Bulk Material in Decanting Centrifuges, M. Stiborsky, W. Stahl, Universitait Karlsruhe, GERMANY

234-3

Separation of Very Fine Polymers in a Decanter Centrifuge, Karsten Keller, Thomas Friedmann, Dupont, USA

234-4

The Research on Application of Decanter in Environment Protection, Yang Zhao, Zhang Jian-Ming, Hefei General Machinery Research Institute, CHINA

SESSION 235: Tuesday, 14:50 - 16:30
FIELD ENHANCED FILTRATIONS 2

235-1

Magnetic Separation: From Minerals Towards Bioproducts, Karsten Keller, Thomas Friedmann, Christian Hoffmann, Dupont, USA

235-2

Vibration Assisted Deadend Filtration, M.A. Koenders, Kingston University, UNITED KINGDOM; R.J. Wakeman, Loughborough University, UNITED KINGDOM

235-3

Analysis of Constant Current Electro-Osmotic Dewatering, Masashi IWATA, Suzuka National College of Technology, JAPAN

235-4

Electrokinetic Remediation of Consolidated Bentonite Cake Contaminated With Zinc Ion, Nobuyuki Katagiri, K. Hayashi, E. Iritani, Nagoya University, JAPAN

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SESSION 236: Tuesday, 14:50 - 16:30 ADVANCES IN FILTER MEDIA 3

236-1
New Funtalized Filter Media For Both Chemicals and Microorganisms Removal: Photocatalytic Nonwoven, Christine Monnet, J. Dussaud, Ahlstorm Research and Services, FRANCE

236-2
Ionization Enhanced Channel Filter, John Zhang, 3M Filtration Products, USA

236-3
Surface Modification of Filter Media For Enhanced Removal of Colloids From Water, Renbi Bai, National University of Singapore, SINGAPORE

236-4
Performance Comparison of Electrostatically Charged Synthetic Filters and Fiberglass Filters. An Insitu Test, Thomas Carlsson, Scandfilter AB, SWEDEN

SESSION 311: Wednesday, 8:30 - 10:35 MODELING IN GAS FILTRATION

311-1
Performance Predictions For Air Filters Made From Fibers With Non-Circular Cross-Sections, Peter C. Raynor, University of Minnesota, USA

311-2
Characteristic Pressure Drop Patterns of Jet Pulsed Filters At instable Operation, Gernot Krammer, Andreas Kavouras, Graz University of Technology, AUSTRIA

311-3
Gas Cleaning Using a Fixed Bed Dust Collector, A. Macias-Machin, F. Diaz Reyes, Grupo Energía Y Medio Ambiente (EMA), SPAIN

311-4
Kinetics of Loading of Fibrous Prefilters and The Strategy of Their Optimization, V.A. Kirsch, I.B. STECHKINA, Institute of Physical Chemistry of Russian Academy of Sciences, RUSSIA

311-5
Physics of Aerosol Filtration, V.A. Kirsch, Institute of Physical Chemistry of Russian Academy of Sciences, RUSSIA

SESSION 312: Wednesday, 8:30 - 10:35 MEMBRANE FOULING 1

312-1
MBR Biomass Characteristics and Membrane Aeration: Their Influence on Membrane Fouling, Eve Germain, Tom Stephenson, Cranfield University, UNITED KINGDOM; Pete Pearce, Thames Water, UNITED KINGDOM

312-2
Long Term Fouling in Membrane Bioreactors, S. Judd, E. Reid, S. Churchouse, Cranfield University, UNITED KINGDOM

312-3
Chemical Cleaning of a Tubular Mineral Microfiltration Membrane Fouled With a Whey Protein Concentrate Suspension: Characterisation of Hydraulic and Chemical Cleanliness, B. Blanpain-Avet, Institut National De La Recherche Agronomique, FRANCE; J.F. Migdal, T. Bénézec, INRA, FRANCE

312-4
Interactions Between Sludge Composition and Filtration in Submerged Membrane Bioreactors For Municipal Wastewater Treatment, C. Cabassud, A. Massé, M. Spérandio, LIPE, FRANCE

312-5
A Membrane Cleaning Study in Hollow-Fiber Microfiltration of Activated Sludge Wastewater, A.L. Lim, Renbi Bai, National University of Singapore, SINGAPORE

SESSION 313: Wednesday, 8:30 - 10:35 MEMBRANES IN WATER/WASTEWATER TREATMENT 2

313-1
Ultrafiltration Technology For Potable, Process and Wastewater Treatment, Harry Futselaar, Stephan Van Hoof, Rick Rosberg, NORIT Membrane Technology, NETHERLANDS

313-2
Clarification of Water by Immersed Membrane System: Role of the Module Configuration and Operational Conditions on the Step Separation Intensification, P. Chokschart Sridang, M. Héran, A. Grasmick, Laboratoire Genie Des Procédés De Montpellier II, FRANCE

313-3
Integrated System For the Recovery of CaCO₃, NaCl and MgSO₄·7H₂O From Nanofiltration Retentate, Efreem Curcio, E. Drioli, A. Criscuoli, G. Di Profio, University of Calabria, ITALY

313-4
Anaerobic Bioreactor With Immersed Membrane- Performance and Biomass Filterability, M. Rodríguez, E. Giraldo, CIAA Citec Universidad De Los Andes, COLOMBIA; M. Spérandio, C. Cabassud, Laboratoire d'Ingénierie Des Procédés De l'Environnement (LIPE), FRANCE

313-5
Combining Ultrafiltration With Chelation For the Treatment of Wastewater, Andrew Jones, R.W. Lovitt, University of Wales Swansea, UNITED KINGDOM

SESSION 314: Wednesday, 8:30 - 10:35 CAKE FILTRATION - AUXILIARIES

314-1
Thin-Cake Filtration, Cake Washing and Drying Testing To Determine the Optimum Process Technology, Barry A. Perlmutter, BHS - Filtration Inc., USA

314-2
Effective Hydraulic Resistance of the First Cake Layer at the Filter Surface: A Three Dimensional Solution, Franck Noël, Philippe Schmitz, Marc Prat, GEMP - IMFT, FRANCE

314-3
Biosludge Dewatering Options and Testing Methods, Wu Chen, Frank Parma, Wilhelm Schabel, Dow Chemical, USA

314-4
Constant Rate Filtration on a Horizontal Filter Leaf With Sedimentation, E.W.Y. Tan, R.G. Holdich, R.J. Wakeman, Loughborough University, UNITED KINGDOM; D. O'Beirne, Astrazeneca Charnwood, UNITED KINGDOM

314-5
Constant Rate Microfiltration of Deformable Gel Particle Slurries, Yu-Li Lin, Wei-Ming Lu, Da-Ming Wang, Kuo-Lun Tung, National Taiwan University, R.O.C.

SESSION 315: Wednesday, 8:30 - 10:35 DELIQUORING, EXPRESSION, AND DRYING 1

315-1
Multistage Filtration/Expression of Food Suspension With Highly Compressible Filter Cake, Jean-Louis Lanoiselle, Véronique Moïny, Eugène Vorobiev, Université De Technologie De Compiègne, FRANCE

315-2
Enhanced Ultrafine Coal Dewatering by Asphalt Emulsion, D. Tao, B. Li, R. Honaker, University of Kentucky, USA; B.K. Parekh, Center For Applied Energy Research, USA

315-3
Mechanical Dewatering of Residual Sludge Enhanced by a Local Thermal Supply, M. Valat, S. Couturier, J.V. Axelaire, J.R. Puiggali, Laboratoire Energetique, FRANCE

315-4
The Moving Bed Washing Process - An Alternative To Conventional Purification Steps?, Bernhard Hoffner, Werner Stahl, Universität Karlsruhe, GERMANY

315-5
Purification Processes - A Short Overview, Bernhard Hoffner, Benjamin Fuchs, Werner Stahl, Universität Karlsruhe, GERMANY; Jürgen Heuser, Aventis Pharma Deutschland Gmbh, GERMANY

SESSION 316: Wednesday, 8:30 - 10:35 FUNDAMENTALS IN DEPTH FILTRATION

316-1
Three-Dimentional, Multilayer Filtration Medium For Liquid and Gas Applications, Jonathon George, Andrea Grosso, Maura Roperto, Ahlstrom Turin, Spa, ITALY

316-2
Effect of Surface Interactions on Particle Deposition in Granular Media and its Quantification, Renbi Bai, National University of Singapore, SINGAPORE; Chi Tien, Syracuse University, USA

316-3
Direct Simulation of the Deep Bed Filtration Initial Stage, H. Duval, C. Riviere, P. Schmitz, D. Masson, J.-B. Guillot, Ecole Centrale Paris, FRANCE

316-4
Effect of Real Particles Packing With Large Size Ratio on Porosity and Tortuosity of Filter Bed, M. Mota, J.A. Teixeira, R. Dias, A. Yelshin, University of Minho, PORTUGAL

316-5
Deep Bed Filtration and Membrane Filtration: Similarities And Differences, Roger Ben Aim, LIPE/INSA, FRANCE; S. Vigneswaran, UTS, AUSTRALIA

SESSION 321: Wednesday, 13:15 - 14:30 TOPICS IN GAS FILTRATION 2

321-1
Study of Particles Capture Mechanisms in Woven Activated Carbon Filters: Image Analysis, M. Bénésse, L. Le Coq, C. Sollicec, Ecole Des Mines De Nantes, FRANCE

321-2
Image Analysis of Regeneration Behavior of the Ceramic Filter, Zhongli Ji, Honghai Chen, Haiqing Jiao, Mingxian Shi, University of Petroleum, CHINA

321-3
Simultaneous Removal Characteristics of SO₂ and Dust in integrated Pollutant Control Systems, Young-Ok Park, S.J. Park, J.H. Lim, S.K. Jeong, S.D. Kim, H.K. Choi, H.S. Park, J.E. Son, Korea Institute of Energy Research, KOREA

SESSION 322: Wednesday, 13:15 - 14:30 MEMBRANE FOULING 2

322-1
A New Backwash Process With Air Shear in inside-Out Hollow Fibers Dead End Ultrafiltration For Drinking Water Production Plants, Pierre-Jean Remize, Christelle Guigui, Corinne Cabassud, LIPE INSA, FRANCE

322-2
Combined Ultrafiltration and Adsorption of An Industrial Sewage Containing Toxic Compounds, C. Cabassud, N. Lesage, M.H. Manéro, M. Spérandio, LIPE, FRANCE

322-3
Control of Combined Fouling Mechanisms During Microfiltration Through a Phenomenological Approach, Alexia Grenier, Martine Meireles, Pierre Aimar, Philippe Carvin, Université Paul Sabatier, FRANCE

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SESSION 323: Wednesday, 13:15 - 14:30 NEW MEMBRANES AND PROCESSES

323-1
Optimized Membrane Development Based on a Broad Range of Characterization Techniques, John a. Simonetti, PTI Advanced Filtration, USA

323-2
Preparation of New Zeolite Membrane: Hydrothermal Synthesis and Characterization of Vanadium Silicate-1, Asalgisa Tavolaro, University of Calabria, ITALY

323-3
A Study on the Keratin Membrane, Xu Li, Ying Chen, Yuxin Wang, Qixin Zhu, Tianjin University, CHINA

SESSION 324: Wednesday, 13:15 - 14:30 CAKE FILTRATION TOPICS

324-1
An Innovative Computer Programme For Calculation and Design of Filter Presses, Ioannis Nicolaou, F.O.S Filtration Software & Technology, GERMANY

324-2
Fouling and Cake Model For Immersed Membrane Bioreactor, M. Rodriguez, E. Giraldo, CIIA Citec Universidad De Los Andes, COLOMBIA; M. Spérando, C. Cabassud, Laboratoire d'Ingénierie Des Procédés De L'Environnement (LIPE), FRANCE

324-3
Prediction of Filter-Cake Properties From Particle Collective Characteristics, Jose Angel Sorrentino, Universidad Central De Venezuela, VENEZUELA; Harald Anlauf, Institut Für Mechanische Verfahrenstechnik Karlsruhe, GERMANY

SESSION 325: Wednesday, 13:15 - 14:30 DELIQUORING, EXPRESSION, AND DRYING 2

325-1
Deliquoring of Super-Compactible Filter Cakes by Filtration, Centrifugation and Expression, Wenping Li, Frank M. Tiller, University of Houston, USA

325-2
Research of Spiral Dynamic Expression, Dewu Yang, Dongwei Ma, Yuanfeng Yang, Shenyang Institute of Chemical Technology, CHINA

325-3
Energy Balance of Filtration and Expression, H. Ohya, S. Kuri, Kuri Chemical Engineers, Inc., JAPAN

SESSION 326: Wednesday, 13:15 - 14:30 FILTERAIDS

326-1
Recent Developments in Organic Precoat Filter Aids, Eberhard Gerdes, J. Rettenmaier & Söhne, GERMANY

326-2
Precoat Filtration of Mineral Suspension Deflocculated by Dispersants To Preserve the Filtrate Quality and Liquefy the Filter Cakes, E. Vorbiev, Th. Mouroko-Mitoulou, Z. Soua, Université De Technologie De Compiègne, FRANCE

326-3
A New Biogenic Filter Aid For Fine Filtration, Roy Rieber, Traclana, LLC, USA; Ernest Mayer, Dupont, USA

SESSION 331: Wednesday, 14:50 - 16:50 GAS-LIQUID COALESCENCE

331-1
Improved Coalescing Filter Design Utilizing a Multi-Component Media Approach, Steven Ziebold, Monsanto Enviro-Chem, USA

331-2
Modeling Droplet Coalescence Non-Woven Fibrous Filter Media, G.G. Chase, Geethakrishnan Vasudevan, B. Raber, S.I. Hariharan, University of Akron, USA

331-3
Spectral Dynamic Efficiency of Glass Microfiber Filters in Liquid Aerosol Filtration, T. Frising, Aerosol Filtration Laboratory, FRANCE; D. Thomas, P. Contal, D. Leclerc, Chemical Engineering Sciences Laboratory, FRANCE; D. Bémer, National Safety Research Institute, FRANCE

331-4
Filtration of Separation of Fine Particles and Vapour From Industrial Process Air, Martin Lindqvist, Scandfilter, SWEDEN

331-5
Simulation of Oil Saturation in Porous Media, W. Heikamp, Andreas Stephan, Filterwerk Mann+Hummel GmbH, GERMANY

SESSION 332: Wednesday, 14:50 - 16:50 MEMBRANE FOULING 3

332-1
Study of Hollow-Fiber Membranes Ageing Due To Chemical Cleaning, S. Rouaix, C. Causserand, P. Aimar, Lab De Genie Chimique, FRANCE; N. Abidine, Aquasource, FRANCE

332-2
Intermittent Stress Induced by Aeration To Reduce Fouling in Hollow-Fibre Membrane Reactor, Laure Martinelli, Christelle Guigui, Alain Liné, LIPE INSA, FRANCE

332-3
Prevention of Membrane Fouling by High Efficient Microfiltration Accompanied With Cyclic Backwashing, M.S. Jami, T. Ohn, E. Iritani, Nagoya University, JAPAN

332-4
Incorporation of the Probability of Particle Adhesion in the Combined Pore Blockage and Cake-Filtration Model To Describe Protein Fouling During Cross-Flow Microfiltration, Da-Ming Wang, Jia-Shyan Shiau, National Taiwan University, R.O.C.

332-5
Network Model of Porous Filter Filtration Via Pore Scale Reproduction of Process Fouling Mechanisms, Fu Zhao, Heather Landis, Steven J. Skerlos, University of Michigan, USA

SESSION 333: Wednesday, 14:50 - 16:50 MEMBRANES IN WATER/WASTEWATER TREATMENT 3

333-1
Characterization of Biomass Activity in a Membrane Bioreactor in Transient State, C. Cabassud, M. Espinosa-Bouchot, M. Spérando, INSA/LIPE, FRANCE

333-2
Contaminants Retention by Membrane Processes, C. Causserand, P. Aimar, C. Roques, E. Singlande, Université P. Sabatier, FRANCE; J-P Cravedi, INRA, FRANCE

333-3
The Water Treatment by Incased Type of Tubular Ceramic Membranes, T. Tanaka, M. Kitagawa, M. Tajima, Y. Narukami, K. Yoshizaki, M. Tazaki, Kubota Corp., JAPAN

333-4
Removal of Iron and Manganese by UF in Combination With Prechlorination in Drinking Water Treatment, Kwang-Ho Choo, Hae-Bum Lee, Sang-June Choi, Daegu University, KOREA

333-5
Membrane Super-Filtrating Concentrating Research of Revolving Flows, Dewu Yang, Yongji Liu, Shenyang Institute of Chemical Technology, CHINA

SESSION 334: Wednesday, 14:50 - 16:50 COAGULATION AND FLOCCULATION

334-1
Floc Breakage and Re-Formation in Concentrated Suspensions, John Gregory, University College London, UNITED KINGDOM; Richard R Horsley, Curtin University of Technology, AUSTRALIA

334-2
Flocculation Related To Local Hydrodynamics in a Couete-Flow, C. Coufort, D. Bouyer, A. Liné, LIPE INSA, FRANCE

334-3
Flocculation: Camp Number and Local Hydrodynamic Conditions, R. Ben Aim, LIPE, FRANCE; A. Khellil, University of Blidah, ALGERIA

334-4
A New Protocol For Measuring Sludge Network Strength and Relation To Filterability, Mohammad Abu Orf, B. Ormeci, U.S. Filter, USA

334-5
Control of Industrial Wastewater Flocculation by Streaming Current Monitoring, Ernest Mayer, Dupont Ex. Station, USA; Roy S. Rieber, Traclana LLC, USA

SESSION 335: Wednesday, 14:50 - 16:50 DELIQUORING, EXPRESSION, AND DRYING 3

335-1
Sludge Dewatering With Contripress, Jennifer Brown, Paul S. Scholtyssek, Netzsch, Inc., USA; Ernest Mayer, Dupont, USA

335-2
Performance of Screw Press in Slimy Sludge Dewatering, Yoshinao Kurita, Sadao Murata, Kurita Machinery Mfg. Co., JAPAN; Yoshiro Aoyama, Yamato Sangyo Co., JAPAN

335-3
A Development of Filter Press Dewatering Systems For Using the Heating Plate, Jung Eun Lee, Hydrolab Institute, KOREA

335-4
De-Saturation of Fine Coal: A Different Approach, Q.P. Campbell, M. Blenkinsop, M. Le Roux, Potchefstroom University, SOUTH AFRICA

335-5
Filtration and Consolidation Properties of Oil in Water Emulsions, Eiji Iritani, Y. Mukai, N. Katagiri, S. Matsumoto, Nagoya University, JAPAN

SESSION 336: Wednesday, 14:50 - 16:50 DEVELOPMENTS IN FILTER MEDIA

336-1
Methods of Polymer Removal, Sue Reynolds, Carolina Filters, Inc., USA

336-2
The Filter Medium - Crucial Interface Between Apparatus and Suspension, Harald Anlauf, University Karlsruhe, GERMANY

336-3
Metallic Filtration Media For Gas and Liquid Filtration, C. Kuang, Y. Fang, L. Gu, F. Wang, Y. Wang, Y. An, D. Li, Advanced Technology & Materials Corporation, CHINA

336-4
An Asymmetric Sintered Metal Filter Element For Microfiltration, L. Gu, C. Kuang, F. Wang, Y. Wang, D. Li, Y. Fang, Advanced Technology & Materials Corporation, CHINA

336-5
The Filtration System With a Rigid-Tubular Media, I. Kawano, S. Matsunami, T. Nozu, H. Abe, K. Yagishita, Sanshin Mfg. Co., Ltd., JAPAN

Technical Program

SESSION 411: Thursday, 8:30 - 10:10 HYDRO AND GAS CYCLONES

411-1
The Use of Hydrocyclone Models in Practical Design, Wu Chen, Dow Chemical, USA

411-2
Visualization of the Precessing Vortex Core in a Cyclone Separator by PIV, Xiaolin Wu, Mingxian Shi, University of Petroleum, CHINA

411-3
Experimental Research on Cyclone Performances At High Temperatures, Jianyi Chen, Mingxian Shi, University of Petroleum, CHINA

411-4
Distribution of Oil Droplet Size and It's influence Factors in De-Oiling Hydrocyclone, Zhaohui Shu, Wenmei Chen, Liangyin Chu, Huazhong University of Science and Technology, CHINA

SESSION 412: Thursday, 8:30 - 10:10 INNOVATIONS IN MEMBRANES 1

412-1
Dynamics of Ultrafiltration Under Frequent Backflushing Condition, Gunnar Jonsson, Technical University of Denmark, DENMARK

412-2
New Method of Determination of Ion Permeability Coefficient Utilizing Membrane Potential, Ryosuke Takagi, Shukugawa Gaukin College, JAPAN; Arto Pihlajamäki, Marianne Nyström, Lappeenranta University of Technology, FINLAND

412-3
Relationship Between Gas Bubble Velocity and Pemeate Flux in Gas-Sparging Ultrafiltration With Various inclinations, Tung-Wen Chen, Shin-Lung Lin, Tamkang University, R.O.C.

412-4
Diffusion and Permeation Mechanism of Supercritical Fluids Through Porous Membranes, Baoquan Zhang, Caiyun Chu, Lili Liu, Xiufeng Liu, Tianjin University, CHINA

SESSION 413: Thursday, 8:30 - 10:10 NEWDEVELOPMENTS IN FILTER EQUIPMENT 1

413-1
The Adaption of Design and Operating Parameters of Solid-Liquid Separation Equipment To the Changes of Product Specifications and Demands, Werner Stahl, University Karlsruhe, GERMANY

413-2
Concentrating Thin Suspensions of Fine Particles With a Continuous Flow Tubular Pressure Filter, Klaus J. Julkowsk, KJJ Filter Engineering, USA; Patrick a. Mueller, Drm, Dr. Mueller AG, SWISS

413-3
Comparison of Cross Flow Filtration and Dynamic Shear Stress Filtration: An Analysis of Design Features and Performances, Reinhard Bott, Thomas Langeloh, Egon Ehrfeld, Bokela Gmbh, GERMANY

413-4
Improving Densification of Coal Tailings Using Deep Cone Thickener, B.K. Parekh, Center For Applied Energy Research, USA; F. Baczek, Dorr-Olive Eimco, USA

SESSION 414: Thursday, 8:30 - 10:10 CENTRIFUGE FILTRATION 1

414-1
New Power Saving Technology For High-Rate and High-Speed Centrifuge Applications, Wallace Leung, Bird Machine Company, USA

414-2
An Innovative Computer Programme For Batch Filtering Centrifuges, Ioannis Nicolaou, F.O.S Filtration Software & Technology, GERMANY

414-3
The Influence of the Precipitate/Crystal Properties on Centrifugal Separation, Thomas Friedmann, Karsten Keller, Sean Dalziel, Dora Lui, Dupont, USA

414-4
The Purification of a Porous System in the Centrifugal Field, Benjamin Fuchs, Werner Stahl, Universitat of Karlsruhe, GERMANY

SESSION 415: Thursday, 8:30 - 10:10 MEDIA TESTING 1

415-1
Metalic Filter Elements: Determining An Element's Suitability For Reuse After Cleaning, Robert A. Smith, Southern Metal Processing Co., Inc., USA

415-2
What is a Bubble Point?, Krishna Gupta, A. Jena, Porous Materials, Inc., USA

415-3
Hydraulic Oil Filtration, H.H. Kleizen, Delft University of Technology, NETHERLANDS

415-4
The Application of Simplified Process Statistical Variance Techniques To Enhance the Detection of Filtration Integrity Loss, Michael J. Sadar, Hach Company, USA

SESSION 416: Thursday, 8:30 - 10:10 CROSS FLOW FILTRATION

416-1
Analysis of Crossflow Filtration Based on Particle Adhesion, Chi Tien, Syracuse University, USA

416-2
Fractal Study of Cake Structure and the Corresponding Behaviors of High Shear Cross-Flow Ceramic Micro-Filtrations, Wenping Li, Frank M. Tiller, Qixin Zhu, University of Houston, USA

416-3
Experimental Study of High Shear Cross-Flow Membrane Micro-Filtration on Ceramic Membranes, Wenping Li, Frank M. Tiller, Qixin Zhu, University of Houston, USA

416-4
Effects of Operating Conditions on the Performance of Cross-Flow Microfiltration of Fine Particle/Protein Binary Suspension, Kuo-Jen Hwang, Fu-Yuan Chou, Tamkang University, R.O.C.

SESSION 421: Thursday, 10:30 - 11:45 AUTOMOTIVE APPLICATIONS IN GAS FILTRATION

421-1
New Generation Direct Flow Engine Air Filters – Performance Analysis, Tadeusz Jaroszczyk, Stephen L. Fallon, Byron A. Pardue, Kelly Schmitz Fleetguard/Nelson, USA

421-2
Air Induction Systems Using Long Life Reticulated Foam Media, Neville J. Bugli, Gregory S. Green, Visteon Corporation, USA

421-3
Numerical Investigations of a Disk-Stack Centrifuge Used As An Oil Mist Separator For Automotive Applications, Alexander Zink, Manfred Piesche, University of Stuttgart, GERMANY

SESSION 422: Thursday, 10:30 - 11:45 INNOVATIONS IN MEMBRANES 2

422-1
Comparison and Combination of Air Sparging and Backflushing on a Membrane Bioreactor, Christan Psoch, S. Schiewer, University of Alaska Fairbanks, USA

422-2
COD Reduction in Nanofiltration of Dairy Process Water Using a Vibratory Dynamic Filtration System, M.Y Jaffrin, O. Akoum, L.H. Ding, M. Frappart, UTC, Dept GB, FRANCE

422-3
Effect of Grafting Yields on the Gating Characteristics of Thermo-Responsive Gating Membranes, Liang-Yin Chu, Yan Li, Jia-Hua Zhu, Su-Lan Xia, Wen-Mei Chen, Xin-Cai Xiao, Jian-Bo Qu, Sichuan University, CHINA

SESSION 423: Thursday, 10:30 - 11:45 NEW DEVELOPMENTS IN FILTER EQUIPMENT 2

423-1
Application of Hot Filterpress/ Rollfit-Process For Solvent Suspension (Detailed Process Description), Urs A. Peuker, Institut Fur Chemische Verfahrenstechnik, GERMANY

423-2
Revival of Drum Filters: Most Modern Applications and Design Features, Reinhard Bott, Thomas Langeloh, Bokela Gmbh, GERMANY

423-3
Combined Mechanical Filtration and thermal Dehydration in Filter Presses, Lothar Kuffel, R.F. Buhl, Klinkau Gmbh & Co., GERMANY

SESSION 424: Thursday, 10:30 - 11:45 CENTRIFUGE FILTRATION 2

424-1
The CD Filter, Josef Tichy, Filtration Technology, GERMANY

424-2
Flow Through Compressible Filter Cakes Under Static and Dynamic Pressure Conditions, Christoph Lustenberger, Erich J. Windhab, ETH Lebensmittelwissenschaft, SWEDEN

424-3
Lab Scale Batch Filtering Centrifuge, Greg Wood, Dupont Engineering, USA; Anthony S. Trasatti, Dupont Central Research & Development, USA

SESSION 425: Thursday, 10:30 - 11:45 MEDIA TESTING 2

425-1
The Effect of Engine and Oil Condition on Wear Generation Rates in Diesel Lube Oil, Barry Verdegan, B. Steffen, Fleetguard Inc., USA; D Stehouwer, Stehouwer Testing Services, USA

SESSION 426: Thursday, 10:30 - 11:45 EQUIPMENT SELECTION AND COMBINED OPERATIONS

426-1
The Selection of Solid/Liquid Separation Equipment Using Computer Software, E.S. Tarleton, R.J. Wakeman, Loughborough University, UNITED KINGDOM

426-2
Internet Based Equipment, Selection, Modeling and Simulation, Richard Holdich, Loughborough University, UNITED KINGDOM

426-3
Improving the Product Properties of Crystalline Products by Modifying Crystallization and Solids Processing, Michael Bentz, Werner Stahl, Universität Karlsruhe, GERMANY

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Tuesday, April 20, 2004 _____ US\$65/ea.

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(1)Liquid Filtration Basic _____ US\$500

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(3)Motor Vehicle Filtration _____ US\$500

(4)Industrial Centrifugation Technology _____ US\$500

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(See Page 3 for details)

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