



Selected papers presented at the International Conference on Desalination for the Environment, Clean Water and Energy, European Desalination Society, 23–26 April, 2012, Barcelona, Spain

Further papers appear in Vol. 51/1–3 and 51/4–6 (January 2013)

See full contents of the conference papers at pages x–xxiii

Membrane distillation

- Fabrication of electrospun nanofibrous membranes for membrane distillation application
L. Francis, H. Maab, A. AlSaadi, S. Nunes, N. Ghaffour and G.L. Amy (Thuwal, Saudi Arabia)..... 1337
- A novel solar-driven air gap membrane distillation system
E.K. Summers and J.H. Lienhard V (Cambridge, USA)..... 1344
- Membrane distillation properties of TiO₂ ceramic membranes modified by perfluoroalkylsilanes
J. Kujawa, W. Kujawski, S. Koter, K. Jarzynka, A. Rozicka, K. Bajda (Torun, Poland),
S. Cerneaux, M. Persin and A. Larbot (France)..... 1352
- Effect of temperature difference on performance of membrane crystallization-based membrane
distillation system
Y.-S. Park (Daejeon, Korea), C.-K. Lee, S.-K. Kim, H.-J. Oh (Goyang-Si, Korea), S.-H. Lee
(Seoul, Korea) and J.-S. Choi (Goyang-Si, Korea)..... 1362
- An assessment of the cleaning solutions' purification by membrane filtration
I. Kowalska (Wroclaw, Poland)..... 1366

Modeling/Simulation

- Multi-dimensional simulation tool development for the performance evaluation of a CDI electrode
and its geometry parameter optimization
B.G. Jeon and H.C. NO (Daejeon, Korea)..... 1377
- Flow transport modelling of feed species (water and salt) through a seawater RO membrane
A.H. Hashim (Manama, Bahrain)..... 1385
- Modeling in TRNSYS of a single effect evaporation system powered by a Rankine cycle
S. Casimiro (Lisbon, Portugal), C. Ioakimidis (Bilbao, Spain), J. Mendes and M. Giestas
(Lisbon, Portugal)..... 1405
- Optimization coupling RO desalination unit to renewable energy by genetic algorithms
T. Ben M'Barek, K. Bourouni and K.B. Ben Mohamed (Tunis, Tunisia)..... 1416
- Numerical simulation of the adsorption process of copper for phosphoric acid purification
S. Zermane and A.-H. Meniai (Constantine, Algeria)..... 1429
- Modeling and simulation of wind energy chain conversion
S. Bellarbi, N. Kasbadji merzouk, A. Malek and C. Larbes (Algeria)..... 1434
- Uncertainty analysis of COP prediction in a water purification system integrated into a heat
transformer using several artificial neural networks
J.A. Hernández (Cuernavaca, México) and D. Colorado (Coatzacoalcos, Mexico)..... 1443
- Modeling of phosphoric acid purification contaminated by magnesium and cadmium
N. Boulkroune, A.H. Meniai, W. Louaer and K. Bitchikh (Constantine, Algeria)..... 1457
- Geochemical modeling of groundwater in the El Eulma area, Algeria
L. Belkhiri (Batna, Algeria) and L. Mouni (Bouira, Algeria)..... 1468

Modeling, simulation and experimental validation of a pad humidifier used in solar desalination process	
K. Zhani (Sfax, Tunisia) and H. Ben Bacha (Alkharj, Saudi Arabia)	1477
A CO ₂ -PENS model of methods and costs for treatment of water extracted during geologic carbon sequestration	
E.J. Sullivan, S. Chu, P.H. Stauffer and R.J. Pawar (Los Alamos, USA)	1487
Simplified residence time prediction models for constructed wetland water recycling systems	
X. Wei (Columbus, USA), X. Wang, B. Dong (Wuhan, China), X. Li (Guilin, China), A.K. Plappally (Cambridge, USA), Z. Mao (Wuhan, China) and L.C. Brown (Columbus, USA).....	1494
Numerical simulation of forced convective evaporation in thermal desalination units with vertical tubes	
R. Kouhikamali, B. Hassanpour and K. Javaherdeh (Rasht, Iran)	1503
Simulation of a giant MSF recirculation plants	
A.K. El-Feky (Inshas, Egypt).....	1511
Water treatment and reuse	
Design and start-up experiences of 19,000 m ³ /d Camp de Tarragona-Vilaseca Water Reclamation Plant	
B. Salgado, K. Majamaa, J. Sanz and J. Molist (Spain)	1519
Electrochemical decolourisation of cotton dye baths for reuse purposes: a way to reduce salinity of the textile wastewater	
V. López-Grimau, C. Gutiérrez, M. Sala and M. Crespi (Terrassa, Spain)	1527
Pollution loads and surface water quality in the Kızılırmak Basin, Turkey	
S.Ç. Ayaz, Ö. Aktaş, S. Dağlı, C. Aydoğan, E. Atasoy Aytış (Kocaeli, Turkey) and L. Akça (Ankara, Turkey)	1533
The performance of a fixed-bed treatment system packed with layered textiles for their filtration/adsorption potential for salt and organic pollutant	
A. Ojstršek and D. Fakin (Maribor, Slovenia).....	1543
Optimization of system for thermal treatment of chlorine water	
V. Nikulshin (Odessa, Ukraine)	1549
Wastewater	
Direct sludge filtration: sustainable municipal wastewater treatment	
H. Futselaar, P. van Lierop and R. Borgerink (AS Enschede, The Netherlands).....	1554
Characterisation of foulants in membrane filtration of biorefinery effluents	
T. Handelsman (Sydney, Australia), T. Nguyen (Melbourne, Australia), M. Vukas, G. Barton, H. Coster (Sydney, Australia), F. Roddick (Melbourne, Australia) and J. Kavanagh (Sydney, Australia).....	1563
A simple model for secondary clarifier: application to wastewater treatment plant	
Z. Bakiri and S. Nacef (Setif, Algeria).....	1571
Removal of aromatic hydrocarbons (BTX) in anoxic and anaerobic wastewater treatment processes	
B. Mrowiec, M. Kuglarz and L. Przywara (Bielsko-Biala, Poland).....	1577
Optimization of removal of colour and organic pollutants from textile wastewater treated with UV/H ₂ O ₂ adopting the Plackett–Burman factorial design	
D. Fakin and A. Ojstršek (Maribor, Slovenia).....	1584
Coagulation enhancement of nonylphenol ethoxylate by partial oxidation using zero-valent iron/hydrogen peroxide	
S.-S. Chen, N.C. Nguyen, Y.-M. Chen (Taipei, Taiwan) and C.-W. Li (Taipei, Taiwan)	1590
HF wastewater remediation by electrocoagulation process	
S. Aoudj (Merveilles, Algeria), A. Khelifa (Blida, Algeria), N. Drouiche and M. Hecini (Merveilles, Algeria)	1596
Evaluation of possibility of textile dye removal from wastewater by aqueous two-phase extraction	
D.Z. Ivetic, M.B. Sciban, V.M. Vasic, D.V. Kukic, J.M. Prodanovic and M.G. Antov (Novi Sad, Serbia)	1603

Modeling of cavitation as an advanced wastewater treatment M. Capocelli, M. Prisciandaro (L'Aquila, Italy), A. Lancia (Napoli, Italy) and D. Musmarra (Italy)	1609
Wastewater reuse by means of UF membrane process: a comparison with Italian provisions G. Mazziotti di Celso (Italy) and M. Prisciandaro (L'Aquila, Italy)	1615
Analysis and design of a pilot system for the treatment of industrial wastewaters using membrane processes C.A. Espinoza, A.G. Gotor and S.O.P. Báez (Las Palmas, Spain)	1623
Removal of phosphate from Eshidiya industrial wastewater by sedimentation and enhanced sedimentation S. Emeish (Assalt, Jordan), M.K. Abu-Arabi and B.I. Hudaib (Irbid, Jordan)	1629
Chloride removal from Eshidiya phosphate mining wastewater M.K. Abu-Arabi (Irbid, Jordan), S. Emeish (Assalt, Jordan) and B.I. Hudaib (Irbid, Jordan)	1634
Contaminant removal	
Turbidity and pH dissipations in a dosage of high concentration NaOH solution to seawater V. Kesler, D. Hasson, H. Shemer, R. Semiat (Haifa, Israel), C. Bartels (Oceanside, USA) and M. Wilf (San Diego, USA)	1641
A new, energy-efficient approach for boron removal from SWRO plants O. Nir (Haifa, Israel), M. Herzberg and O. Lahav (Haifa, Israel)	1651
Concentrations of PCBs and heavy metals in water of the dam reservoir and use of pre-hydrolyzed coagulants to micropollutants removal from surface water A. Rosińska and L. Dąbrowska (Czstochowa, Poland)	1657
Association of dissolved air flotation (DAF) with microfiltration for cyanobacterial removal in water supply P.A.P.d. Amaral, L.A. Coral, M.E. Nagel-Hassemer, T.J. Belli and F.R. Lapolli (Florianópolis, Brazil)	1664
Cesium (Cs) and strontium (Sr) removal as model materials in radioactive water by advanced reverse osmosis membrane T. Sasaki, J. Okabe, M. Henmi, H. Hayashi and Y. Iida (Shiga, Japan)	1672
Removal of nonionic surfactant from electroplating wastewater by fluidized zerovalent iron with two oxidants (H ₂ O ₂ /Na ₂ S ₂ O ₈) S.-S. Chen, H.-T. Hsu, H.-J. Tsui and Y.-M. Chang (Taipei, Taiwan)	1678
Removal of copper II present in phosphoric acid using Algerian dates' stones as solid support S. Zermane and A.-H. Meniai (Constantine, Algeria)	1685
Biosorption of lead from aqueous solution by biologically activated date pedicels: batch and column study H. Yazid, L. Amour, A. Terkmani and R. Maachi (Bab Ezzouar, Algeria)	1690
Application of the catalytic properties of methionine to the determination of Bi(III) as well in the presence of Cu(II) ions at low levels by square wave voltammetry A. Nosal-Wiercińska, M. Grochowski (Lublin, Poland), S. Skrzypek and D. Guziejewski (Łódź, Poland)	1700
Removal of bromide ions from an aqueous solution by Donnan dialysis with anion-exchange membranes S. Łakomska and J. Wiśniewski (Wrocław, Poland)	1705
Factorial experimental design for optimizing the removal of lead ions from aqueous solutions by cation exchange resin D. Kavak, M. Demir, B. Başsayel and A.S. Anagün (Meselik, Turkey)	1712
Removal of lead from aqueous solutions by precipitation: statistical analysis and modeling D. Kavak (Meselik, Turkey)	1720
Removal of nitrate from JUST wastewater effluent: a case study S. Al-Asheh, A. Al-Zoubi and H. Malas (Irbid, Jordan)	1727

Study of the removal of residual aluminum through the biopolymers carboxymethylcellulose, chitin, and chitosan M.Á. Lobo-Recio (Araranguá, Brazil), F.R. Lapolli, T.J. Belli, C.T. Folzke and R.R.Z. Tarpani (Florianópolis, Brazil).....	1735
Corrosion/Water, oil and gas	
Corrosion and corrosion management investigations in seawater reverse osmosis desalination plants N. Larché (Brest, France), P. Dézerville (Saint-Maurice, France) and D. Le Flour (Brest, France).....	1744
Dynamic cross-flow filtration of oilfield produced water by rotating ceramic filter discs M. Ebrahimi, O. Schmitz, S. Kerker (Giessen, Germany), F. Liebermann (Rain/Lech, Germany) and P. Czermak (Giessen, Germany).....	1762
Industrial case studies in the petrochemical and gas industry in Qatar for the utilization of industrial waste heat for the production of fresh water by membrane desalination M. Khraisheh, F. Benyahia and S. Adham (Doha, Qatar).....	1769
Pretreatment/Post-treatment	
NOM characterization by LC-OCD in a SWRO desalination line F.X. Simon, Y. Penru, A.R. Guastalli, S. Esplugas, J. Llorens (Barcelona, Spain) and S. Baig (France).....	1776
Ceramic membrane as a pretreatment for reverse osmosis: interaction between marine organic matter and metal oxides L. Dramas and J.-P. Croué (Thuwal, Saudi Arabia).....	1781
Post-treatment of desalinated water and water quality characteristics in Yanbu Industrial City A.S. Bajahlan and J.-M. Wie (Yanbu Al-Sinaiyah, Saudi Arabia).....	1790
SWRO pre-treatment design using high-rate dissolved air flotation including preliminary pilot-scale results T. Amato (Birmingham, UK), K.-S. Park, W. Yim and T. Kim (Seoul, Korea).....	1804
Advantages obtained through the elimination of chemical products in the pre-treatment process of large desalination plants for the control of fouling, biofouling and scaling in reverse osmosis membranes A.M. Elguera, S.O. Pérez-Báez and A. Gómez-Gotor (Las Palmas, Spain).....	1817
Pre-treatment of Llobregat River raw water through pressurised inside/out hollow fibre ultrafiltration membranes O. Ferrer, X. Serrallach (Spain), F. Horváth (Enschede, The Netherlands), J. Mesa (Barcelona, Spain), O. Gibert and X. Bernat (Spain).....	1831
Performance of a sand filter in removal of algal bloom for SWRO pre-treatment S. Plantier, J.-B. Castaing, N.-E. Sabiri, A. Massé, P. Jaouen and M. Pontié (France).....	1838
New range of natural products for pre-treatment of water desalination plants N. Adroer, E. Cortada and J. Ruiz (Barcelona, Spain).....	1847
Characterization of biofilm bacteria isolated from two distinct seawater reverse osmosis systems in Saudi Arabia M.O. Saeed (Al-Jubail, Saudi Arabia), W.L. Teng (Singapore), I.A. Al-Tisan and M.A. Namazi (Al-Jubail, Saudi Arabia).....	1855
Long term experience in the operation of nanofiltration pretreatment unit for seawater desalination at SWCC SWRO plant A.A. Al-Hajouri (Ummlujj, Saudi Arabia), A.S. Al-Amoudi and A.M. Farooque (Jubail, Saudi Arabia).....	1861
The study of environmentally friendly pretreatment system K. Takeuchi (Yokohama, Japan), Y. Ito, K. Tokunaga, M. Nagai (Nagasaki, Japan) and H. Iwahashi (Yokohama, Japan).....	1874
Evaluation of a novel double-layer biological aerated filter (BAF) for drinking water bio-pretreatment: comparison with a single-layer BAF M. Han, Z.-w. Zhao, W. Gao, J. Liu and F.-y. Cui (Harbin, China).....	1881

Cogeneration/hybrid

Preliminary thermoeconomic analysis of combined parabolic trough solar power and desalination plant in port Safaga (Egypt) J. Blanco, P. Palenzuela, D. Alarcón-Padilla, G. Zaragoza and M. Ibarra (Almeria, Spain).....	1887
The performance investigation of a temperature cascaded cogeneration system equipped with adsorption desalination unit A. Myat (Singapore), K. Thu, Y.D. Kim (Thuwal, Saudi Arabia) and N.K. Choon (Singapore).....	1900
Thermodynamic analysis of a cogeneration gas turbine and desalination plant A. Al Zahrani, J. Orfi, H. Al Ansary, B. Salim and Z. Al Suhaibani (Riyadh, Saudi Arabia).....	1908
The performance of a temperature cascaded cogeneration system producing steam, cooling and dehumidification A. Myat (Singapore), K. Thu, Y.-D. Kim (Thuwal, Saudi Arabia) and N.K. Choon (Singapore).....	1915

More

Recovery of solved salts of the liquid effluents from the manufacture of cured hams: preliminary study J.M. Arnal, B. García-Fayos, M. Sancho and M.C. Leon-Hidalgo (Valencia, Spain).....	1922
Desalination of saline water with single and combined adsorbents A. Aghakhani, S.-F. Mousavi and B. Mostafazadeh-Fard (Isfahan, Iran).....	1928
Chemical analysis of distilled water: a case study N.S. Al-Deffeeri (Ardia, Kuwait).....	1936
Coagulation activity of spray dried salt extracted <i>Moringa oleifera</i> T.A. Mohammad, E.H. Mohamed (Serdang, Malaysia), M.J.M.M Noor (Malaysia) and A.H. Ghazali (Serdang, Malaysia).....	1941
Effect of the packaging and storage conditions on the coagulation activity of spray-dried salt-extracted <i>Moringa oleifera</i> M.J.M.M. Noor (Kuala Lumpur, Malaysia), E.H. Mohamed, T.A. Mohammad and A.H. Ghazali (Serdang, Malaysia).....	1947
Biosorption of Cu ²⁺ in a packed bed column by almond shell: optimization of process variables M.C. de Hoces, G.B. García, A.R. Gálvez, A.E. Álvarez and M.Á. Martín-Lara (Granada, Spain).....	1954
Evaporation of water/ammonia binary liquid film by mixed convection inside isothermal vertical plates A.B. Mohamed (Monastir, Tunisia) and J. Orfi (Riyadh, Saudi Arabia).....	1966
Slip flow effect on laminar convection inside micro-tubes with permeable walls N. Loussif (Monastir, Tunisia), J. Orfi (Riyadh, Saudi Arabia) and A. Omri (Gafsa, Tunisia).....	1973
Optimization of AC impedance test cell for accelerated evaluation of marine industrial coating in Kuwait A. Husain and M. Al Madaj (Safat, Kuwait).....	1980
Biosorption of nickel using unmodified and modified lignin extracted from agricultural waste A.E. Okoronkwo and S.J. Olusegun (Akure, Nigeria).....	1989
Author index to issues 7–9	1998
Author index to issues 1–9	2000