

Desalination and the Environment

Halkidiki, Greece

22–25 April 2007

PROGRAMME

MONDAY MORNING 23 April (8.30–13.00)

8.30 Registration

9.00 Opening

10.00 Opening of the exhibit

Coffee break

11.00 Keynote presentations

Environmental impact and impact assessment of seawater desalination

Sabine Lattemann, Thomas Höpner (Germany)

Seawater desalination: An emerging pressure in the Mediterranean marine environment

Fouad Abousamra (United Nations Environment Program)

Strategies for engineering development advancing technology, prioritising people

Richard Bowen (University of Wales, Swansea)

Challenges of nanofiltration in water treatment

Marianne Nyström (Finland)

Technologies for large scale seawater desalination using concentrated solar radiation

Franz Trieb, Hans Müller-Steinhagen, Jürgen Kern, Jürgen Scharfe, Malek Kabariti, Ammar Al Taher

Global markets

Christopher Gasson (GWI)

MONDAY EVENING 23 April (19.00-21.00)

Regional

465 Concentrating solar power for seawater desalination in the Middle East and North Africa

Franz Trieb, Hans-Müller-Steinhagen

Reports of the Maghreb Societies

Azzedine Elmidaoui, Morocco

Bechir Hamrouni, Tunisia

W. Naceur, N. Drouiche, Algeria

R. Zahran, Egypt

461 Horizons and future of water desalination in Libya

A.A. Elhassadi, A. Selini

Desalination in the Maghreb

Koussai Quteishat

26 Cost analysis of seawater desalination with reverse osmosis in Turkey

D. Akgul, I. Koyuncu

35 Integrating large scale seawater desalination plants within Israel's water supply systems

J. Dreizin, A. Tenne, D. Hoffman

165 A new approach to meet the growing demand of professional training for the operating and management staff of desalination plants

Joachim Gebel, Süleyman Yüce

MONDAY AFTERNOON		April 23 (14.00–16.00)			
	S1 Fouling and scaling I A	S2 Renewable and non-conventional energy I B	S3 SWRO I C	S4 MBR I D	
14.00	472 Colloidal organic matter fouling of UF membranes: role of NOM composition and size <i>M.D. Kennedy, J. Kamanyi, V.A. Yangali Quintanilla, B.G.J. Heijman, G. Amy</i>	207 An autonomous wave-powered desalination plant <i>M. Folley, B. Peñate Suarez, T.W.T. Whittaker</i>	43 Advances in seawater desalination technology <i>A.D. Khawaji, I.K. Kutubkhanah, J.-M. Wie</i>	90 Effect of coagulant addition on membrane fouling and nutrient removal in a submerged membrane bioreactor <i>K.G. Song, Y. Kim, K.-H. Ahn</i>	
14.20	354 An experimental study of UF membrane fouling by humic acid and sodium alginate solutions: the effect of backwashing on flux recovery <i>K. Katsoufidou, S.G. Yiantsios, A.J. Karabelas</i>	273 Assessment of EU policy: Implications for the implementation of autonomous desalination units powered by renewable resources in the Mediterranean region <i>J. Gibbons, M. Papapetrou</i>	76 Quality criteria for desalinated water and introduction of a novel, cost effective and advantageous post treatment process <i>L. Birnhack, R. Penn, O. Lahav</i>	92 Modeling and simulation of membrane bioreactors by incorporating simultaneous storage and growth concept: An especial attention to fouling while modeling the biological process <i>D. Prakash Saroj, G. Guglielmi, G. Andreottola</i>	
14.40	375 Pilot filtration study to reduce fouling on Marbella seawater RO plant <i>S. Rybar, M. Vodnar, M. Esteban Martin, M. Jefferies</i>	376 Renewable energy powered desalination in Baja California Sur, Mexico <i>A. Bermudez-Contreras, M. Thomson, D.G. Infield</i>	82 Larnaca Desalination Plant, Cyprus — from an efficient to an effective plant operation <i>E. Koutsakos, D. Moxey</i>	101 Membrane sequencing batch reactor (MSBR) application for landfill leachate treatment <i>A.I. Zouboulis, P. Samaras, D. Zamboulis, I. Tsilogeorgis</i>	
15.00	409 Loss of salt rejection due to organic fouling in seawater reverse osmosis (SWRO) desalination processes <i>S. Kim, S. Lee, E. Lee, E.M.V. Hoek, J. Cho</i>	399 Assessment of institutional structure and policy in Turkey: implications for the implementation of autonomous desalination units <i>S. Sözen, S. Teksoy, M. Papapetrou</i>	85 Long term experience with membrane performance at the Larnaca Desalination Plant <i>E. Koutsakos, C. Bartels, S. Cioffi, S. Rybar, M. Wilf</i>	120 Parametric studies of a vibration membrane for MBR <i>S.C. Low, H.H. Juan</i>	
15.20	412 Optimization of PAC dose to reduce RO cleaning in an IMS <i>S.G. Salinas Rodríguez, M.D. Kennedy, A. Diepeveen, H. Prummel, J.C. Schippers</i>	437 Institutional and policy framework analysis in relation to the application of autonomous desalination systems, Greece <i>A. Stefopoulou, K. Soulis, M. Papapetrou</i>	94 SAWACO – North Obhor SWRO plant operational experience <i>N. Kammourie, T. Dajani, S. Cioffi, S. Rybar</i>	145 Influence of operation parameters on membrane fouling and bioactivities in semi-industrial-scale process for dilute swine wastewater using submerged membrane bioreactor (MBR) and reuse <i>N. Prado, J. Ochoa, A. Amrane, J. Meinhold</i>	
15.40	446 An online cleaning system to reduce demister fouling in MSF Sidi Krir desalination plant, 2 x 5000 m³/d <i>H.E.S. Fath, M.A. Ismail</i>	441 The electrical discharge as a source of a mechanical energy <i>R. Mestiri, R. Hadaji, S. Ben Nasrallah</i>	156 Coupling softening–ultrafiltration like pretreatment of seawater: case study of the Corso desalination plant (Algiers) <i>D. Abdessemed, G. Nezzal</i>	179 Enhanced phenol removal by floating fungal populations in high concentration phenol-fed membrane bioreactor <i>S. Ahn, S. Congeevaram, Y.-K. Choung, J. Park</i>	
16.00	Coffee break				

MONDAY AFTERNOON		April 23 (16.30–18.30)		
	S5 Intake and outfall A	S6 Renewable and non-conventional energy II B	S7 SWRO II C	S8 Environment I D
16.30	444 Seawater intake and pre-treatment/brine discharge - environmental issues <i>T. Peters, D. Pintó</i>	448 Osmotic power - power production based on the osmotic pressure difference between fresh water and sea water <i>S.E. Skilhagen, J. Dugstad, R.J. Aaberg</i>	236 The benefits of seawater conversion vessels <i>C.A. Griffin, Jr.</i>	257 Environmental impacts of mega desalination projects: A case study of the Red-Dead Sea conveyor <i>H. Abu Qdais</i>
16.50	419 Modelling and environmentally sound management of brine discharges from desalination plants <i>T. Bleninger, G.H. Jirka</i>	452 On the reduction of desalting energy and its cost in Kuwait <i>M.A. Darwish, S. Alotaibi</i>	247 Criteria and procedure for selecting a site for a desalination plant <i>N.X. Tsiourtis</i>	11 The Libyan experiment on the environmental impact assessment for desalination plants (case study: Benghazi North and Tobruk desalination plants) <i>M.M. Elabbar</i>
17.10	211 Seawater intakes for RO desalination plants <i>J.J. Malfeito, J. Díaz-Caneja</i>	484 LTTD (Low Temperature Thermal Desalination) — new sustainable desalination process <i>M. Rognoni, S. Kathirolu, P. Jallihal</i>	250 ERI SIM — SWRO process simulator <i>R.L. Stover</i>	142 Being “green” in chemical water treatment technologies: issues, challenges and developments <i>A. Stahtoulopoulou, A. Ketsetzi, K. Demadis</i>
17.30	458 Can we port or transfer the preferred geological properties necessary for infiltration gallery? Development of synthetic sea wells <i>A.T. Jones</i>	93 Waste to water: a low energy water distillation method <i>D. Raviv, B. Moore, E. Martinson</i>	251 SWRO with the ERI’s PX energy recovery device — a global survey <i>I. Cameron, R. Clemente</i>	158 LCA-based tool for the environmental evaluation of potable water production <i>F. Vince, E. Aoustin, P. Bréant, F. Maréchal</i>
17.50	259 Salinity tolerance of the Mediterranean seagrass <i>Posidonia oceanica</i>: recommendations to minimize the impact of brine discharges from desalination plants <i>J.L. Sánchez-Lizaso, J. Romero, J. Ruiz, E. Gacia, J.L. Buceta, O. Invers, Y.F. Torquemada, J. Mas, A. Ruiz-Mateo, M. Manzanera</i>	301 Optimal water purification using low grade waste heat in an absorption heat transformer <i>R.J. Romero, A. Rodriguez-Martinez</i>	289 An update of energy consumption by reverse osmosis desalination plants in Canary Islands <i>J. Jaime Sadhwani, J.M. Veza</i>	427 Model investigation on the impact of Raha Beach development on Umm Al Nar power and desalination plant <i>K.A. Mohamed</i>
18.10	125 Simulating brine plumes discharged into the seawaters <i>H.H. Al-Barwani, A. Purnama</i>		344 Efficiency optimization in SWRO plants: high efficiency and low maintenance pumps <i>M.A. Rivas, A. de la Torre</i>	261 Preparation of hydrophilic faujasite membranes to separate MTBE/water mixtures <i>M. Asghari, T. Mohammadi, R.F. Alamdari, F. Agand</i>

TUESDAY MORNING		April 24 (8.30–10.30)						
	S9 Fouling and Scaling II	A	S10 Solar I	B	S11 Pretreatment I	C	S12 Wastewater treatment I	D
8.30	1 Natural organic matter (NOM) and scaling fouling in NF membranes and its factors: a review <i>A.S. Al-Amoudi</i>		18 Experimental analysis of a seawater greenhouse desalination process designed for arid countries <i>H. Mahmoudi, M.F.A. Goosen, S.A. Abdul-Wahab, S.S. Sablani, N. Spahis</i>		5 Application of flotation as a pretreatment process during desalination <i>K.A. Matis, E.N. Peleka</i>		45 Membrane methods in tailoring simpler, more efficient, and cost effective waste water treatment alternatives <i>M.G. Khedr</i>	
8.50	8 RO membrane autopsy of Zarzis brackish water desalination plant <i>M. Karime, B. Hamrouni, S. Bouguecha</i>		398 First experimental results of a new hybrid solar/gas multi-effect distillation system: the AQUASOL project <i>D.-C. Alarcón-Padilla, L. García-Rodríguez, J. Blanco-Gálvez, W. Gernjak, S. Malato-Rodríguez</i>		24 Pilot test of UF pretreatment prior to RO for cooling tower blowdown reuse of power plant <i>J. Zhang, H. Zeng, C. Ye, L. Chen, X. Yan</i>		62 High effective to remove nitrogen process in abattoir wastewater treatment <i>S. Ye, S. Guo, H. Wu</i>	
9.10	54 Cleaning of fouled ultrafiltration (UF) membrane by algae during reservoir water treatment <i>H. Liang, J. Chen, W. Gong, G. Li</i>		86 Performance optimization of solar multi-stage flash (MSF) desalination process using Pinch technology <i>Shaobo Hou, Zhongjin Zhang, Zhongzhou Huang, Aixia Xie</i>		122 The sensitivity of SDI analysis: from RO feed water to raw water <i>A. Mosset, V. Bonnelye, M. Petry, M.A. Sanz</i>		65 Ultrafiltration for municipal effluent reuse: the Sulaibiya and the eastern irrigation scheme case studies <i>F. Knops, H. Futselaar, S. van Hoof, L. Broens</i>	
9.30	56 The effects of performance and cleaning cycles of new tubular CERAMIC microfiltration membrane fouled with a model yeast suspension <i>S. Ogunbiyi, N.J. Miles, N. Hilal</i>		104 Performance analysis of a new type desalination unit of heat pump with humidification and dehumidification <i>Penghui Gao, Lixi Zhang, H. Zhang</i>		266 Pretreatment for desalination of seawater from an open intake by dual-media filtration: Pilot testing and comparison of two different media <i>S.T. Mitrouli, S.G. Yiantsios, A.J. Karabelas, M. Mitrakas, M. Follesdal, P.A. Kjolseth</i>		78 Wastewater desalination in Israel <i>P. Glueckstern, M. Priel, E. Gelman, N. Perlov</i>	
9.50	69 Bio-fouling in membrane processes: micro-organism/surface interactions, hydrodynamic detachment method <i>K. Ouazzani, J. Bentama</i>		463 Solar stills made with tubes for seawater desalting <i>M. Reali, G. Modica</i>		327 Chlorination and coagulation as pretreatments for greywater desalination <i>E. Friedler, I. Katz, C.G. Dosoretz</i>		100 Performance of VSEP — vibratory membrane filtration system during the treatment of municipal landfill leachates <i>A.I. Zouboulis, M. Petala</i>	
10.10	68 Effect comparison of pre-coating and in-line coagulation on algae fouling control for UF membranes <i>H. Liang, W. Gong, G. Li</i>		482 Solar water and energy processes and applications — A new SolarPACES task. First initiatives: The CONSOLIMED project <i>J. Blanco, W. Gernjak, D.C. Alarcón-Padilla</i>		329 The potential of CO₂ stripping for pretreating brackish and wastewater desalination feeds <i>D. Lisitsin, D. Hasson, R. Semiat</i>		167 Desalination of produced water from oil production fields by membrane processes <i>M. Cakmakci, N. Kayaalp, I. Koyuncu</i>	
10.30	Coffee break							

TUESDAY MORNING		April 24 (11.00–13.00)						
	S13 Fouling and Scaling III	A	S14 Solar II	B	S15 Modelling	C	S16 Wastewater treatment II	D
11.00	83 Effective scale control for seawater RO operating with high feed water pH and temperature <i>S.-P. Tsai, B. Andrews, E. Koutsakos</i>		112 A solar desalination system using humidification dehumidification process: Experimental study and comparison with the theoretical results <i>C. Yamali, I. Solmuş</i>		16 Modeling of volatile organic compound removal from water by pervaporaton process <i>A.A. Ghoreyshi, K. Peyvandi</i>		180 Characteristics and application of multiple membrane process in plating wastewater reutilization <i>W. Zuo, G. Zhang, Q. Meng, H. Zhang</i>	
11.20	413PAC: A simulation of the change in Al concentration and Al solubility in RO <i>S.G. Salinas Rodriguez, M.D. Kennedy, H. Prummel, A. Diepeveen, J.C. Schippers</i>		279 Solar thermal desalination technologies <i>H. Qiblawey, F. Banat</i>		143 Optimisation of design and operation of MSF desalination process using MINLP technique in gPROMS <i>M.S. Tanvir, I.M. Mujtaba</i>		184 Use of SAPO-5 zeolite-filled polyurethane membranes in wastewater treatment <i>G. Ciobanu, G. Carja</i>	
11.40	466 Studies of scale formation and optimization of antiscalant dosing in multieffect thermal desalination units <i>P. Budhiraja, A.A. Fares</i>		137 A hybrid solar desalination process of the multi-effect humidification dehumidification and basin type unit <i>S. Hou, H. Zhang</i>		234 Process modelling for assessing desalination plant operation <i>W. ElMoudir, M. ElBousiffi, S. Al-Hengari</i>		185 Effective nitrogen removal of low C/N ratio piggery wastewater by anoxic-oxic process combined with membrane <i>H. Oh, Y. Choung, S. Ahn, H. Kim</i>	
12.00	133 Measurement of biofouling in seawater. Some practical tests <i>J.M Veza, M. Ortiz, J.J. Sadhwani, J.E. Gonzalez, F.J. Santana</i>		164 A solar multiple effect distiller for Jordan <i>E.S. Hrayshat, A.E. Al-Rawajfeh</i>		277 Design and operating characteristics of pilot scale reverse osmosis plants <i>H.M. Ettouney, A.-J. Farouq, H.N. Qiblawey</i>		212 Feasibility test of heavy metal removal from washing effluent of mine soil using micellar enhanced ultrafiltration (MEUF) <i>J. Jung, J.-S. Yang, S.-H. Kim, J.-W. Yang</i>	
12.20	148 Effect of cake layer structure on colloidal fouling in reverse osmosis membranes <i>C. Park, Y.H. Lee, S. Lee, S. Hong</i>		260 Economic evaluation of desalination by small-scale autonomous solar powered membrane distillation units <i>F. Banat, N. Jwaied</i>		414 The application of neural network to modeling process of purification meat industry <i>E. Puszczalo, J. Bohdziewicz, W. Kaminski, A. Kwarciak</i>			
13.00	Lunch							

TUESDAY AFTERNOON		April 24 (14.00–16.00)						
	S17 Fouling and scaling IV	A	S18 Pretreatment/Hybrid	B	S19 Drinking water	C	S20 Nanofiltration/reverse osmosis I	D
14.00	163 Progressing the understanding of chemical inhibition of mineral scale by green inhibitors <i>A. Martinod, M. Euvrard, A. Foissy, A. Neville</i>		332 UF/MF as RO pre-treatment: the real benefit <i>V. Bonnélye, L. Guey, J. Del Castillo</i>		64 Safe drinking water for everybody?! Membrane technology from small scale to large scale and vice versa <i>H. Futselaar, L. Broens, A.D. Levine, P. Amizoglou</i>		49 New generation of low fouling nanofiltration membranes <i>C. Bartels, M. Wilf, W. Casey, J. Campbell</i>	
14.20	270 A novel fl-FFF method estimating interfacial interactions related to UF and NF membrane fouling <i>S. Kim, S. Lee, J. Cho</i>		449 UF/MF pre-treatment to RO in seawater and wastewater reuse applications — a comparison of energy costs <i>G.K. Pearce</i>		283 Comparison of different ED stack conceptions when applied for drinking water production from brackish waters <i>C. Larchet, V.I. Zabolotsky, N. Pismenskaya, V.V. Nikonenko, A. Tskhay, K. Tastanov, G. Pourcelly</i>		119 Water softening using a generic low cost nanofiltration membrane <i>S.C. Low, C. Liping, J. Weixin</i>	
14.40	294 Characteristics of RO foulants in a brackish water desalination plant <i>C.P. Huang, J.R. Pan, H.L. Yang</i>		176 Intensification of reverse osmosis (RO) pre-treatments: Macroscopic and microscopic characterizations of a cellulosic ultrafiltration (UF) membrane fouled by a humic acids cake deposit: Intensification of RO pre-treatments <i>A. Thekkedath, W. Naceur, H. Suty, J.C. Schrotter, L. Auret, M. Pontié</i>		431 Integration of drinking water technologies with reclaimed water production <i>A.D. Levine, P. Amizoglou</i>		155 Modification of PVA membranes: shifting to RO region, morphology and rejection of ions <i>A.E. Al-Rawajfeh, R.M.A.Q. Jamhour</i>	
15.00	298 An atomic force microscope study of calcium carbonate adhesion to desalination process equipment: effect of anti-scale agent <i>K. Al-Anezi, D. Johnson, N. Hilal</i>		31 Demonstration of a new hybrid process for decentralised drinking and service water production from surface water in Thailand <i>B. Schlichter, H. Gatjal, V. Mavrov, H. Chmiel, T. Sack</i>		483 Safe water: the performance of membrane technology and implications for international development <i>A.I. Schäfer, B.S. Richards</i>		396 The uses of trace ions for understanding the mechanisms of nanofiltration <i>A. Yaroshchuk, Y. Boiko, A. Makovetskiy</i>	
15.20	307 Implications of enhancing critical flux of particulates by AC fields in RO desalination and reclamation <i>Y.P. Zhang, T.H. Chong, A.G. Fane, A. Law, H.G.L. Coster, H. Winters</i>		159 Multi-objective optimization of membrane and thermal desalination plants <i>F. Vince, E. Aoustin, P. Bréant, F. Maréchal</i>				174 Novel approach combining physico-chemical characterizations and mass transfer modeling in nanofiltration (NF) and low pressure reverse osmosis (LPRO) membranes for brackish water desalination intensification <i>M. Pontié, H. Dach, J. Leparc, M. Hafsi, A. Lhassani</i>	
15.40							194 Impact of the chemical nature of surface of nanofiltration membranes in treatment of hard waters <i>A. Kavitskaya, A. Kononova, D. Kucheruk, V. Badekha, V. Dzyubenko</i>	
16.00	Coffee break							

Aquasolis

Room E

- 14.00 488** The AQUASOLIS Project: perspectives of solar concentration for water desalination and extraction from air
U. Bardi
- 14.20 487** A quantitative comparison of different methods of water extraction from air
A. Scrivani, U. Bardi
- 14.40 485** The REACT project: perspectives of solar concentration technologies for Mediterranean countries
T. El Asmar
- 15.00 486** Testing of a parabolic trough collector for process heat, cooling or desalination concentrating solar power technologies
D. Krüger, K. Hennecke, M. Schmitz, Y.S. Pandian

TUESDAY AFTERNOON		April 24 (16.30–18.10)		
	S21 Nanofiltration/ reverse osmosis II A	S22 Electrodialysis/Boron removal B	S23 Thermal distillation I C	S24 Wastewater treatment III D
16.30	215 Use of RO and NF treatment of copper containing wastewaters in combination with flotation <i>P.S. Sudilovskiy, G.G. Kagramanov, V.A. Kolesnikov</i>	124 Desalination of effluents of galvanic industries by means of electrodialysis <i>S.V. Shishkina, A.V. Dyukov, A.N. Zheludkov</i>	55 Fuzzy set implementation for controlling and evaluation of factors affecting multiple-effect distillers <i>R. Mamlook, A.E. Al-Rawajfeh</i>	258 Coupling photocatalysis and membrane process for water purification <i>N. Saffaj, S. Alami Younssi, A. Albizane, Z. Barhon</i>
16.50	268 Comparison of multi port and end port connections for pressure vessels <i>T. Haarburger, N. Shachaf</i>	205 Performance evaluation of electrodeionization process based on ionic equilibrium with plate and frame modules <i>F. Liu, G. Zhang, H. Zhang, J. Mo</i>	57 Parameters affecting the solubility of carbon dioxide in seawater at the conditions encountered in MSF desalination plants <i>K. Al-Anezi, C. Sommerfield, D. Mee, N. Hilal</i>	285 Treatment of waste water from metal working by ultrafiltration considering the effects of operating conditions <i>M. Hesampour, A. Krzyzaniak, M. Nyström</i>
17.10	274 Characterization of nanofiltration and reverse osmosis membrane performance for aqueous salt solutions using irreversible thermodynamics <i>V.K. Gupta, S.-T. Hwang, W.B. Krantz, A.R. Greenberg</i>	422 Adsorption–membrane filtration (AMF) hybrid process for boron removal from seawater: an overview <i>N. Kabay, M. Bryjak, S. Schlosser, N. Kitis, S. Avlonitis, Z. Matejka, I. Al-Mutaz, M. Yuksel</i>	401 Energy savings and better performances through variable speed drive application in desalination plant brine blow down pump service <i>E. Garibotti</i>	316 Study of different alternatives of tertiary treatments for wastewater reclamation to optimize the water quality for irrigation reuse <i>J. Illueca-Muñoz, J.A. Mendoza-Roca, A. Iborra-Clar, A. Bes-Piá, V. Fajardo-Montañana, F.J. Martinez-Francisco, I. Bernácer-Bonora</i>
17.30	286 Performance advancement in the spiral wound RO/NF element design <i>C. Bartels, S. Rybar, M. Hirose</i>	423 Removal of boron from SWRO permeate by boron selective ion exchange resins containing N-methyl glucamine groups <i>N. Kabay, S. Sarp, M. Kitis, H. Koseoğlu, O. Arar, M. Bryjak, R. Semiat, M. Yuksel</i>	88 Two-stage solar multi-effect humidification dehumidification desalination process plotted from pinch analysis <i>Shaobo Hou</i>	326 Desalination of domestic wastewater effluents: phosphate removal as pretreatment <i>I. Katz, C.G. Dosoretz</i>
17.50	295 The optimal allocating pumping rate of a multi-wells system for a brackish water desalination plant <i>C.Y. Hsui</i>	425 Removal of boron from seawater by adsorption-membrane hybrid process: implementation and challenges <i>M. Bryjak, J. Wolska, A. Witek, N. Kabay</i>	440 Optimization of the tube size and the arrangement of evaporator tube bundle to improve the performance of MED-TVC systems <i>R.K. Kamali, S. Mohebbinia</i>	343 Study of the behaviour of a reverse osmosis membrane for wastewater reclamation. Influence of wastewater concentration <i>C. García-Figueruelo, B. Montag, A. Bes-Piá, J.A.Mendoza-Roca, E. Soriano-Costa, J. Lora-García</i>
18.10	299 First year of operation of the BWRO 135,000 m³/d Wadi Ma'in plant <i>M. Petry, V. Bonnelye, M.A. Sanz, J. Del Castillo</i>	426 Removal of boron from water by electrodialysis: effect of feed characteristics and interfering ions <i>N. Kabay, O. Arar, F. Acar, A. Ghazal, U. Yuksel, M. Yuksel</i>	111 The release of CO₂ in MSF distillers and its use for the recarbonation plant: a case study <i>N.S. Al-Deffeeri</i>	

WEDNESDAY MORNING		April 25 (8.30–10.30)		
	S25 Nanofiltration/ reverse osmosis III A	S26 Boron removal B	S27 Thermal distillation II C	S28 Textile wastewater D
8.30	420 Temperature and concentration effects on retention and transport of organic pollutants across thin-film composite nanofiltration membranes <i>J. Aguado, J.M. Arsuaga, M.J. López-Muñoz, A. Sotto</i>	281 Boron removal from aqueous solution by reverse osmosis <i>N. Öztürk, D. Kavak, T. Ennil Köse</i>	265 Thermodynamic design and optimization of MED-TVC <i>R. KouhiKamali</i>	17 Phyto-removal of chrome-VI from tannery effluents by <i>Trichoderma</i> species <i>P.S. Vankar, D. Bajpai</i>
8.50	337 Pickling wastewater reclamation by means of nanofiltration <i>A. Bes-Piá, B. Cuartas-Uribe, J.A. Mendoza-Roca, M.V. Galiana-Aleixandre, M.I. Iborra-Clar, M.I. Alcaina-Miranda</i>	353 Boron rejection in SWRO at high pH conditions versus cascade design <i>M. Faigon, D. Hefer</i>	304 Feed water arrangements in multi-effect desalting system <i>M.A. Darwish, K.A. Hassan, M.N. Al-Najem</i>	168 Treatment of textile plant effluent by ultrafiltration and/or nanofiltration for water reuse <i>C. Fersi, M. Dhahbi</i>
9.10	340 Effect of membrane surface adsorption and different complexions in removal of cadmium from water by nanofiltration membrane <i>Q. Zhang, N. Gao, B. Dong, S. Xia, B. Xu</i>	394 Electrodialytic boron removal from SWRO permeate <i>M. Turek, B. Bandura</i>	345 Modelling of the CO₂ release and the carbonate system in multiple-effect distillers <i>H. Glade, A.E. Al-Rawajfeh</i>	358 Nanofiltration of secondary effluent for wastewater reuse in the textile industry <i>J.M. Gozálviz, D.Sanz, J. Lora, J.M. Arnal, M.C. León</i>
9.30	362 The investigation of cleaning of new and fouled membranes characterised by zeta potential and permibility <i>A. Al-Amoudi, P. Williams, S. Mandale, R.W. Lovitt</i>	395 Efficient boron removal from seawater using NF and RO membranes, and effects of boron on THP-1 human cell with respect to toxicities <i>S. Sarp, S. Lee, E. Lee, K. Chon, S.H. Choi, S. Kim, J. Cho</i>	347 CO₂ release in vertical tube falling film evaporators <i>J.-H. Donner, J. Fokken, K. Boeck, H. Glade, S. Will</i>	473 Feasibility of water reuse in the textile industry <i>M.S. Mohsen, J. Jaber</i>
9.50	386 Efficient removals of both TCEP and perchlorate using NF and RO filtration <i>Sungyun Lee, N. Quyet, E. Lee, S. Kim, Sangyoun Lee, Y.D. Jung, S.H. Choi, J. Cho</i>	405 Boron removal by adsorption onto activated alumina and by reverse osmosis <i>W. Bouguerra, A. Mnif, B. Hamrouni</i>	400 Thermo-kinetic simulation of the evaporation effect on the scale formation during desalination processes <i>M. Azaroual, A. Laurent, C. Kervévan</i>	369 Applying filled and unfilled polyether-block-amide (PEBA) membranes to separation of toluene from wastewaters by pervaporation <i>D. Panek, K. Konieczny</i>
10.10	391 Salt production from coal-mine brine in NF–evaporation–crystallization system <i>M. Turek, P. Dydo, R. Klimek</i>		267 Experience of design and optimization of multi-effect desalination systems in Iran <i>R. KouhiKamali</i>	442 Pollution of water resources from industrial effluents. a case study – Benghazi, Libya <i>A.A. Elhassadi, N. Hassan</i>
10.30	Coffee break			

ERI-SIM SWRO Process simulator

- 7.00 Registration
- 7.30 Continental breakfast
- 8.30 ERI SIM Demo
- 10.30 Questions and answers

WEDNESDAY MORNING		April 25 (11.00–13.00)			
	S29 Ultrafiltration/ microfiltration A	S30 Membrane distillation B	S31 ED/NF/UF C	S32 MBR II D	
11.00	365 Recovery of iron (III) from aqueous streams by ultrafiltration <i>X. Bernat, A. Fortuny, F. Stüber, C. Bengoa, A.Fabregatm, J. Font</i>	52 Memstill membrane distillation: a promising near-future desalination technology <i>J.H. Hanemaaijer, J. Medevoort, A.E. van Jansen, E. van Sonsbeek</i>	403 Characterization of marine organic matters and heavy metals with respect to desalination with RO and NF membranes <i>E. Lee, S. Lee, J. Moon, S. Kim, S. Choi, J. Cho</i>	221 Evaluation of using membrane bioreactor for treatment of municipal wastewater at different operating conditions <i>T.A. Mohammed, A.H. Birima, M.J. Megat Mohd Noor, S.A. Muyibi, A. Idris</i>	
11.20	109 Functional polymers in conjunction with ultrafiltration membranes to remove ions from aqueous solution <i>B.L. Rivas, S.A. Pooley, E. Pereira, A. Maureira</i>	202 The potential of membrane distillation as a stand-alone desalination process <i>A.M. Alklaibi</i>	460 A feasibility study of industrial wastewater recovery using electro dialysis reversal <i>Y.-M. Chao, T.-M. Liang</i>	320 Fate of pharmaceuticals and cosmetic ingredients during the operation of a MBR treating sewage <i>R. Reif, S. Suárez, F. Omil, J.M. Lema</i>	
11.40	138 Research of PVA modified UF membrane <i>Y. Shang, Y. Peng</i>	210 A novel membrane bioreactor based on membrane distillation <i>J. Phattaranawik, A.G. Fane, A. Pasquier, B. Wu</i>	308 Purification of copper-containing aqueous solutions by the method of complexation-ultrafiltration <i>I.D. Atamanenko, A.P. Kryvoruchko, L. Yu. Yurlova, V.V. Goncharuk</i>	328 Use of a hybrid membrane bioreactor for the treatment of saline wastewater from a fish canning factory <i>P. Artiga, G. García-Toriello, J. Bouzada, R. Méndez, J.M. Garrido</i>	
12.00	218 AQUAPOT: Study of several cleaning solutions to recover permeate flow in a humanitarian drinking water treatment facility based on spiral wound UF membrane. Preliminary test <i>J.M. Arnal, B. García-Fayos, J. Lora, G. Verdú, M. Sancho</i>	432 Pressure-driven membrane operations and membrane distillation technology integration for water purification <i>F. Macedonio, E. Drioli</i>	408 Simulation of the concentration polarization boundary layer in membrane nanofiltration <i>S. Bousba, S. Nacef, L. Bencheikh</i>	330 A novel CSTR-type hollow-fiber membrane biofilm reactor for consecutive nitrification and denitrification <i>J.-H. Shin, B.-I. Sang, Y.-C. Chung, Y.-k. Choung</i>	
12.20				436 Application of submerged membrane bioreactor (SMBR) for aquaculture effluent reuse <i>V. Jegatheesan, T. Pulefou, C. Steicke, S.H. Kim</i>	
13.00	Lunch				

WEDNESDAY AFTERNOON April 25 (14.00-16.00)								
	S33 Economics	A	S34 Removal of contaminants	B	S35 Photovoltaics	C	S36 Environment II	D
14.00	172 Water desalination cost literature: Review and assessment <i>I. Karagiannis, P. Soldatos</i>		77 Fluoride removal with extremely low energy reverse osmosis membranes: three years of large scale field experience in Finland <i>P. Sehn</i>		71 Alternative designs of a PV-RO desalination unit for remote areas — Economic feasibility <i>A.M. Helal, S.A. Al-Malek, E.S. Al-Katheeri</i>		352 Innovative uses of waste streams from seawater desalination systems (RO, MSF, and the like) <i>M.S.H. Bader</i>	
14.20	108 Investment and production costs of desalination plants by semi-empirical methods <i>S. Frioui, R. Oumeddour</i>		248 Comparison of the performances of electro dialysis and nanofiltration in fluoride removal <i>M. Tahaikt, R. El Habbani, A. Ait Haddou, M. Taky, M. El Amrani, M. Kharif, A. Boughriba, M. Hafsi, A. Elmidaoui</i>		121 A direct coupled photovoltaic seawater reverse osmosis desalination system towards battery based systems — a technical and economical experimental comparative study <i>E.Sh. Mohamed, G. Papadakis, E. Mathioulakis, V. Belessiotis</i>		383 The approach to evaluate power and desalination plants impact on marine environment <i>M.A. Elwaer, M.M. Elabbar</i>	
14.40	317 The economics of desalination <i>M. Alishiri</i>		282 Removal of inorganic charged micropollutants from drinking water supplies by hybrid ion exchange membrane processes <i>S. Velizarov, C. Matos, A. Oehmen, M. Reis, J. Crespo</i>		249 Photovoltaic powered water purification — challenges and opportunities <i>M. Forstmeier, W. Feichter, O. Mayer</i>		255 Implementation of ISO 14001:2004 (environmental management system standard) for reverse osmosis desalination plants for the first time in Iran <i>A. Edalat</i>	
15.00	191 Optimization of desalted water production in a polygeneration scheme for the tourist sector <i>C. Rubio, J. Uche</i>		457 Tackling the problem of nitrate contamination in underground water at Jabel Al-Hasouma Wellfields, Libya <i>A.A. Elhassadi</i>		253 Potential of application of photovoltaic systems for RO desalination in Gaza <i>M.R. Ahmed, S. Hamdan</i>		471 Reverse osmosis desalination plants – marine environmentalist regulator point of view <i>I. Safrai, A. Zask</i>	
15.20	297 Reduce costs for storage and distribution of desalted water — use duplex stainless steel! <i>J. Olsson, M. Snis</i>				339 Autonomous reverse osmosis units driven by RE sources experiences and lessons learned <i>E. Tzen, D. Theofiloyianakos, Z. Kologios</i>		131 Effects of heavy metals and polyelectrolytes in humic substance coagulation <i>N. Hilal, M. Al-Abri, A. Moran, H. Al-Hinai</i>	
15.40					341 Technical and economic comparison between PV-RO system and RO-solar Rankine system. Case study: Thirasia island <i>D. Manolakis, E. Mohamed, I. Karagiannis, G. Papadakis</i>			

**16.00 Closing session
Poster awards**

Posters

- 2 Electrochemical treatment of chemical mechanical polishing wastewater — removal fluoride — sludge characteristics — operating**
N. Drouiche, N. Ghaffour, H. Lounici, M. Mameri, A. Maallemi, H. Mahmoudi
- 7 Application of membrane techniques to produce drinking water in China**
S. Xia, X. Li, Ji Yao, Bing-zhi Dong, Juanjuan Yao
- 9 Carrousel system performance in some Arab countries**
A. El-Zayat
- 27 Evaluation of different carbon and nitrogen sources in production of biosurfactant by *Pseudomonas fluorescens***
M. AbouSeoud, R. Maachi, S. Ferhat, S. Boudergua, A. Nabi
- 39 Water treatment using MIEX®/DOC/ultrafiltration process**
M. Kabsch-Korbutowicz
- 41 Performance evaluation of water treatment ultrafiltration pilot plants treating algae-rich reservoir water**
Heng Liang, Yanling Yang, Weijia Gong, Guibai Li
- 47 Surfactant removal from water solutions by means of ultrafiltration and ion-exchange**
I. Kowalska
- 53 Effect of pretreatment by permanganate/chlorine on algae fouling control for ultrafiltration (UF) membrane system**
Heng Liang, Weijia Gong, Guibai Li
- 61 Separation of carcinogenic aromatic amines in the food colourants plant wastewater treatment**
Shenguan Ye, Hui Wu, Chaohua Zhang, Fu Huang
- 67 Concentration of organic contaminants by ultrafiltration**
K. Majewska-Nowak, M. Kabsch-Korbutowicz, T. Winnicki
- 72 Evaluation and biologic treatment of an urban effluent**
H. Ghoualem, A. Khouider
- 74 Permeation of CO₂ and CH₄ through a 2-(N,N-dimethylamino)ethyl methacrylate and acrylonitrile copolymeric membrane**
Li-guang Wu, Jiang-nan Shen, Huan-lin Chen, Cong-jie Gao
- 87 An open air-vapor compression refrigeration system for air conditioning and desalination on ship**
Shaobo Hou, Huacong Li, Hefei Zhang
- 91 Determination of the effect of calcium ions and polyelectrolytes on characteristics and final properties of synthetic and activated sludge**
T.P. Nguyen, N. Hilal, N.P. Hankins, J.T. Novak
- 95 Study of the hydrolytic acidification-SBR process in aquatic products processing wastewater treatment**
Shenguan Ye, Chaohua Zhang, Xiaoming Qin
- 96 Direct-contact heat transfer of a single volatile liquid drop evaporation in an immiscible liquid**
H.B. Mahood
- 97 Agricultural residue anion exchanger for removal of dyestuff from wastewater using full factorial design**
T.E. Köse
- 98 A kinetic study of nitrite adsorption onto sepiolite and powdered activated carbon**
N. Öztürk, T.E. Köse
- 102 Hydrodynamic study of the granular flow in the solar dryer**
K. Daoud, H. Abchiche
- 105 A new type of seawater desalination system by humidification and dehumidification of air**
Penghui Gao, Lixi Zhang, Hefei Zhang
- 113 Peptides removing in enzymatic membrane bioreactor**
A. Trusek-Holownia, A. Noworyta
- 114 Wastewater treatment in microbial membrane bioreactor**
A. Trusek-Holownia
- 115 Innovative integrated process for the treatment of azo dyes: coupling of photocatalysis and biological treatment**
S. Brosillon, H. Djelal, N. Merienne, A. Amrane
- 116 Separation of alcohol–water solutions by distillation through hollow fibers**
Guoliang Zhang, Lan Lin, Youyi Xu, Qin Meng
- 123 Application of the DSPM-DE model to a high rejection nanofiltration membrane in the separation of nitrate solutions**
A. Santafé-Moros, J.M. Gozálviz-Zafrilla, J. Lora-García
- 126 Treatment of heavy metals by nanofiltration present in the Lake of Reghaïa**
Mourad Taleb Ahmed, Toufik Chaabane, Rachida Maachi
- 132 Characterisation and retention of nanofiltration membranes using PEG, HS and polyelectrolytes**
N. Hilal, M. Al-Abri, H. Al-Hinai
- 134 On-line COP estimation for waste energy recovery heat transformer by water purification process**
R.F. Escobar, D. Juárez, J. Siqueiros, C. Irlas, J.A. Hernández
- 135 Modeling of the adsorption isotherm in synthetic seawater onto modified clay**
M.W. Naceur, F. Zermane, M. Pontié
- 146 Semi-industrial-scale process for dilute swine wastewater treatment using submerged membrane bioreactor (MBR) — effect on atmospheric pollution**
N. Prado, J.-L. Audic, A. Amrane, J. Ochoa, J. Meinhold
- 149 Follow-up of the electrocrystallization of scale and its modification in the presence of zinc**
S. Ghizellaoui, M. Euvard, K. Djebbar, A. Chibani
- 152 Evaluation and evolution of the quality of the water resources in the distribution network**
S. Ghizellaoui
- 153 Heavy metals (Cd, Cu and Zn)-induced stress in phosphate and calcium content of the growth medium of the aquatic plant *Lemna gibba* and in intracellular proline**
S. Sensari, S. Megateli, F. Benmenni, L. Dahmani
- 157 Treatment biologic of an urban sewage resulting of a good industry and production of biogas**
H. Ghoualem, R. Maachou, A. Khouider
- 160 MSF process optimization taken into account availability**
N. Scenna, S. Mussati
- 161 An empirical model for membrane flux prediction in ultrafiltration of surface water**
Shengji Xia, Juanjuan Yao, Naiyun Gao
- 162 The influence of flow rate on CaCO₃ deposition and CO₂-H₂O system in natural water piping systems**
A.E. Al-Rawajfeh, M. Al-Odeinat, Z. Al-Qaisi, J. Ulrich
- 169 Removal of dyes from wastewater using micellar enhanced ultrafiltration**
N. Zaghbani, A. Hafiane, M. Dhahbi

- 170 The researches on the possibility of ultrasound field application in iron removal of water**
L. Stepniak, U. Kępa, E. Stańczyk-Mazanek
- 171 Experimental characterisation of clay material: water retention and shrinkage during moisture removal**
S. Chemkhi, F. Zagrouba
- 177 Views on Libyan national plan (LNP) to resolve water shortage problem (WSP). Part Ib: Great Man-Made River (GMMR) Project — considering interest rate on capital costs**
A. Elhassadi
- 183 The use of the advanced oxidation process in the ozone+hydrogen peroxide system for the removal of cyanide from water**
U. Kępa, E. Stanczyk-Mazanek, L. Stepniak
- 186 Enhancing nitrogen removal of piggery wastewater by membrane bioreactor combined with nitrification reactor**
H. Kim, Y. Choung, S. Ahn, Haeseok Oh
- 188 Enhancement of biological wastewater treatment by magnetic field exposure**
A. Tomska, L. Wolny
- 189 Influence of excessive sludge condition on the efficiency of anaerobic stabilization process and biogas generation**
L. Wolny, I. Zawieja, P. Wolski
- 192 Rheological parameters of dewatered sewage sludge after conditioning**
L. Wolny, P. Wolski, I. Zawieja
- 198 Fouling dynamics modelling in the ultrafiltration of PEGs**
M.-C. Vincent-Vela, S. Álvarez-Blanco, J. Lora-García, E. Bergantiños-Rodríguez, M.C. León Hidalgo
- 199 Influence of feed concentration on the accuracy of permeate flux decline prediction in ultrafiltration**
M.-C. Vincent-Vela, E. Bergantiños-Rodríguez, S. Álvarez-Blanco, J. Lora-García, M.C. León Hidalgo
- 200 Morphologic analysis of porous polyamide 66 membranes prepared by phase inversion**
M. Zeni, R. Riveros, F.J. Souza, M. Mello, C. Medeiros, R.F. Guimes
- 201 Static purification–concentration process study of the system manganese, sulfuric acid-tri-n-octylamine**
F. Hassaine-Sadi, Z. Boukhmikam
- 203 Treatment of high concentration sulfate organic wastewater during tridecanedioic acid production**
Li Xu, Wei Wang, Yongyi Cai
- 204 A study on the performance of charge potential on nanofiltration membrane surface**
Li Xu, Mingyu Wang, Jing He
- 208 Synthesis of inorganic membrane by sol-gel process**
N. Agoudjil, S. Kermadi, A. Larbot
- 213 AQUAPOT: Study of the causes in reduction of permeate flow in spiral wound UF membrane. Simulation of a non rigorous cleaning protocol in a drinkable water treatment facility**
J.M. Arnal, B. García-Fayos, G. Verdú, J. Lora, M. Sancho
- 214 Adsorption kinetics of naphthalene onto organo-sepiolite from aqueous solutions**
Ozer Gok, A.S. Ozcan, A. Ozcan
- 216 Degradation of trichloroethylene by zero-valent iron immobilized in cationic-exchange membrane**
H. Kim, H.-J. Hong, J.-W. Yang
- 217 Removal of arsenate, chromate and ferricyanide by cationic surfactant modified powdered activated carbon**
H.-J. Hong, H. Kim, J.-W. Yang
- 219 Dye mixture adsorption by wood sawdust in batch and fixed bed system**
M.N. Yeddou, A. Bensmaili
- 222 Miniaturized hollow-fiber bioreactor for drug research**
Qin Meng, Guoliang Zhang, Chong Shen
- 224 Experimental measurement and modeling of removal of salts and organic matters (HA) from saline water by adsorption on montmorillonitiques matrixes**
H. Nadjib, M.W. Naceur, N. Ghaffour
- 225 Water produce for pharmaceutical industry: role of reverse osmosis stage**
M. Belkacem, K. Bensadok, G. Nezzal
- 226 Preliminary design and optimisation of a PEUF process for Cr (VI) removal**
P. Cañizares, A. Pérez, J. Llanos, G. Rubio
- 231 Anion exchange resin applied to a separation between nitrate and chloride ions in the presence of aqueous soluble polyelectrolyte**
Y. Berbar, M. Amara, H. Kerdjoudj
- 237 Uptake of As (V) from aqueous solution by calcined anionic clays type LDHs**
G. Carja, S. Ratoi, G. Ciobanu, I. Balasanian
- 238 Degradation of polycyclic aromatic hydrocarbons in soil with sewage sludges**
E. Stańczyk-Mazanek, U. Kępa, L. Stepniak
- 239 The adsorption of Cr(III) and Cr(VI) on activated carbons in the presence of phenol**
J. Lach, E. Okoniewska, E. Neczaj, M. Kacprzak
- 240 The trial of regeneration of used impregnated activated carbons after manganese sorption**
E. Okoniewska, J. Lach, E. Neczaj, M. Kacprzak
- 243 Permeate flux decline prediction in the ultrafiltration of macromolecules with empirical estimation of the gel layer concentration**
M.-C. Vincent-Vela, S. Álvarez-Blanco, J. Lora-García, E. Bergantiños-Rodríguez, D. Sanz Escribano
- 254 Removal of VOCs in water by various poly(dimethylsiloxane) membranes**
T. Uragami
- 275 Disjunctive mathematical model for the optimal synthesis and design of desalting plants**
S.F. Mussati, M. Bartfeld, P. Aguirre, N. Scenna
- 280 Boron removal from aqueous solutions by batch adsorption onto cerium oxide, using full factorial design**
N. Öztürk, D. Kavak
- 287 Weather data and analysis of hybrid photovoltaic–wind power generation systems adapted to a seawater greenhouse desalination unit designed for arid coastal countries**
H. Mahmoudi, S.A. Abdul-Wahab, M.F.A. Goosen, S.S. Sablani, J. Perret, A. Ouagued, N. Spahis
- 300 In-situ electrochemical monitoring of concrete re-bar corrosion during salt fog (spray) testing**
A. Husain, Essam A.M. Hussain, P.S. Brahme
- 302 The effect of a polyelectrolyte on the efficiency of dye-surfactant solution treatment by ultrafiltration**
K. Majewska-Nowak
- 306 Effect of oxidant treatment of date pit activated carbons: application to the treatment of waters**
F. Addoun, Z. Merzougui
- 313 Ion exchange equilibrium between membrane and electrolyte solutions**
Ch. Hannachi, S. Bouguecha, B. Hamrouni, M. Dhahbi
- 314 Effect of sodium chloride on the interactions between biopolymer and surfactant nature interfacial and rheological aspects**
M. Nedjhioui, N. Moulai-Mostefa, A. Bensmaili, A. Skender

- 315 Removal of cadmium (II) from aqueous solution using pure smectite and Lewatite S 100. The effect of time, temperature and metal concentration**
K. Bedoui, I. Bekri-Abbes, E. Srasra
- 322 Characterisation of lignocellulosic material chemically activated, by nitrogen adsorption and immersion calorimetry**
A. Addoun, L. Temdrara, A. Khelifi
- 333 Removal mechanisms of copper using the steel-making slag: adsorption and precipitation**
D.-H. Kim, M.-C. Shin, H.-D. Choi, C.-I. Seo, K. Baek
- 335 Removal characteristics of Reactive Black 5 using surfactant-modified activated carbon**
H.-D. Choi, M.-C. Shin, D.-H. Kim, K. Baek
- 336 The effect of surfactant on reductive dechlorination of trichloroethylene by zero-valent iron**
M.-C. Shin, D.-H. Kim, H.-D. Choi, K. Baek, C.-I. Seo
- 342 Adsorption characteristics of lead(II) ions onto the clay/poly(methoxyethyl)acrylamide (PMEA) composite from aqueous solutions**
M. Şölener, S. Tunali, A.S. Özcan, A. Özcan, T. Gedikbey
- 350 Phenol removal from water by hybrid processes: study of the membrane process step**
A. Bódalo, J.L. Gómez, E. Gómez, G. León, A.M. Hidalgo, M.A. Ruiz
- 351 Facilitated transport of copper through bulk liquid membranes containing different carriers. Comparative kinetic study**
G. León, M.A. Guzmán
- 356 Preliminary modelling and control studies in AQUASOL project**
L. Roca, L.J. Yebra, M. Berenguel, D.C. Alarcón
- 359 Ultrafiltration as a pre-treatment of other membrane technologies in the reuse of textile wastewaters**
J.M. Arnal, M.C. León, J. Lora, J.M. Gozávez, D. Sanz, A. Santafé, J. Tena
- 368 Removal of volatile compounds from the wastewaters by use of pervaporation**
D. Panek, K. Konieczny
- 370 Removal of veterinary drugs from wastewater by characterized RO/NF membranes**
K. Kosutic, D. Dolar, B. Kunst
- 371 Sun tracking systems for the enhancement of productivity of solar distillation systems**
S. Abdullah, O.O. Badran
- 377 Analysis of nanofiltration parameters of an anionic detergent removal**
S. Kertész, Z. László, Z. Hovorka-Horváth, C. Hodúr
- 378 Progress in improving the effectiveness of the single basin passive solar still**
K. Kalidsa Murugavel, Kn.K.S.K. Chockalingam, K. Srithar
- 379 An experimental study on a single basin double slope simulation solar still with a thin layer of water in the basin**
K. Kalidsa Murugavel, Kn.K.S.K. Chockalingam, K. Srithar
- 380 The removal of hardness of water using sulfonated waste plastic**
I. Bekri-Abbes, S. Bayouhd, M. Baklouti
- 381 Modelling of the adsorption of the chromium ion by modified clays**
S. Arfaoui, N. Frini-Srasra, E. Srasra
- 382 Heavy metal-contaminated groundwater treatment by a novel nanofiber membrane**
Yimin Sang, Fasheng Li, Qingbao Gu, Cunzhen Liang, Jiaqing Chen
- 388 Comprehensive utilization of brackish water in ED – thermal system**
M. Turek, P. Dydo
- 389 Electrodialytic utilization of boron IE column post-regeneration layers**
M. Turek, P. Dydo, J. Trojanowska
- 390 Power production from coal-mine brine utilizing reversed electrodialysis**
M. Turek, B. Bandura, P. Dydo
- 392 The influence of concentrate alkalinity on electrodialytic boron transport**
M. Turek, B. Bandura, P. Dydo
- 406 The application of hybrid system UASB reactor-RO in landfill leachate treatment**
J. Bohdziewicz, A. Kwarciak
- 407 Evaluation of landfill leachate pollution and treatment case of Ouled Fayet (Algiers)**
Z. Salem, K. Hamouri, R. Djemaa, K. Allia
- 410 Sequencing batch reactor system for the co-treatment of landfill leachate and dairy wastewater**
E. Neczaj, M. Kacprzak, T. Kamizela, J. Lach, E. Okoniewska
- 415 Landfill leachate treatment by means of anaerobic membrane bioreactor**
J. Bohdziewicz, E. Neczaj, A. Kwarciak
- 417 Recovery of zinc ions from a soil component Na-feldspar by a rhamnolipid biosurfactant**
A. Yeliz, N. Macid, S.A. Yeşim
- 434 The removal of boron from model solutions and seawater using reverse osmosis membranes**
H. Koseoglu, N. Kabay, M. Yiksel, M. Kitis
- 439 A model for the performance of a vertical tube condenser of a solar seawater greenhouse unit in the presence of noncondensable gases**
H. Mahmoudi, A. Ouagued, S.A. Abdul-Wahab, S.S. Sablani, N. Spahis
- 443 Sea water intrusion in Derna City located in the Green Mountain region of Libya – a threatening recurrent phenomenon calling for desalination**
A.A. Elhassadi, M. Hosni
- 451 Removal of phenol from water using granular activated carbons derived from agricultural waste material**
O. Benturki, F. Addoun
- 459 Biological nutrient removal using an alternating of anoxic and anaerobic membrane bioreactor (AAAM) process**
Li-Meil, Yuan, Chuan-Yi Zhang, Dan-Li Xi, Yan-Qiu Zhang
- 464 Purification of water by activated carbons from olive stones**
N. Spahis, A. Addoun, N. Ghaffour, H. Mahmoudi
- 467 Retention of organic matter by cellulose acetate membranes cleaned with hypochlorite**
E. Arkhangelsky, U. Goren, V. Gitis
- 470 Development of an Algerian material montmorillonite clay — Intercalation with selective long-chain alkylammonium cations (octadecyltrimethylammonium, cetylpyridium and tetrabutylammonium) and with tellerium complexes**
M. Boufatit, H. Ait-Amar, W.R. McWhinnie
- 474 Fabrication of polymer film heat transfer elements for energy efficient multi-effect distillation**
T.B. Scheffler, A.J. Leao
- 490 RO membrane fouling with iron, particulates from groundwater wells in California, USA**
Christian Tasser