## CONTENT

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A MULTI-OBJECTIVE OPTIMIZATION MODEL FOR STRATEGIC HYDROGEN INFRASTRUCTURE PLANNING</td>
<td>1</td>
</tr>
<tr>
<td>A. Hugo, P. Rutter, M. Goorgiadis, E. Pistikopoulos, A. Amorelli and G. Z.oia</td>
<td></td>
</tr>
<tr>
<td>ACQUISITION, MODELLING, AND REPRESENTATION OF KNOWLEDGE AS CONTRIBUTION TO INCREASE THE OPERATING RELIABILITY OF CHEMICAL SYSTEMS</td>
<td>7</td>
</tr>
<tr>
<td>C. Becker De Arellano and G. Wozny</td>
<td></td>
</tr>
<tr>
<td>A METHODOLOGY FOR THERMO-ECONOMIC MODELLING AND OPTIMIZATION OF SOFC SYSTEMS</td>
<td>13</td>
</tr>
<tr>
<td>F. Palazzi, F. Marechal, J. van Herle and N. Aulislie</td>
<td></td>
</tr>
<tr>
<td>THERMODYNAMICALLY GUIDED INTENSIFICATION OF SEPARATION PROCESSES</td>
<td>19</td>
</tr>
<tr>
<td>M. Sorinand, F. Rheault</td>
<td></td>
</tr>
<tr>
<td>SITE-MODEL UTILITY SYSTEM OPTIMISATION – INDUSTRIAL CASE STUDY OF KKEPC</td>
<td>25</td>
</tr>
<tr>
<td>K. J: Hirata, P. Chan, K.Y. Cheung, Il Sakamoto, K Ide and C.W.Hui</td>
<td></td>
</tr>
<tr>
<td>MODELLING ANO SIMULATION OF LIQUID-LIQUID BATCH REACTORS</td>
<td>31</td>
</tr>
<tr>
<td>X. Zhcn, R. Smith and C. Theodoropoulos</td>
<td></td>
</tr>
<tr>
<td>APPLICATION OF THE HYDRODYNAMIC ANALOGY APPROACH TO THE MODELLING OF STRUCTURED PACKING-CONTAINING COLUMNS</td>
<td>37</td>
</tr>
<tr>
<td>A. Shillon and E. Letilgi</td>
<td></td>
</tr>
<tr>
<td>IMPROVING PRINCIPAL COMPONENT ANALYSIS BY AUTOMATIC DELAY ADJUSTMENT</td>
<td>43</td>
</tr>
<tr>
<td>E. Musulin, J.M. Noubru and L. T'uijkan</td>
<td></td>
</tr>
<tr>
<td>MODELING OF VINYL ACETATE BIODEGRADATION PROCESSES IN TRICKLE BEO BIOREACTOR</td>
<td>49</td>
</tr>
<tr>
<td>O Kaswra and G. Bartelmus</td>
<td></td>
</tr>
<tr>
<td>LEACHING OF LOW-GRADE MANGANESE ORES: EFFECTS OF MINERALOGICAL COMPOSITION AND REAGENT TYPES ON THE OPTIMIZATION OF THE OPERATIVE CONDITIONS</td>
<td>55</td>
</tr>
<tr>
<td>P.Jgnaciti, G. Furlani, F. Beolchlnj, F. Veglio and L Toro</td>
<td></td>
</tr>
<tr>
<td>DEVELOPMENTS IN THE DESIGN AND OPTIMIZATION OF UTILITY SYSTEMS</td>
<td>61</td>
</tr>
<tr>
<td>R. Smith, O. Abilillear, S.J. Perry and J. Kuk Kim</td>
<td></td>
</tr>
<tr>
<td>VISITING THE SEQUENTIAL FRAMEWORK FOR NEAR OPTIMAL HEAT EXCHANGER NETWORK SYNTHESIS</td>
<td>67</td>
</tr>
<tr>
<td>R. Anantharaman and T. Gundersen</td>
<td></td>
</tr>
<tr>
<td>ENERGY EXPENDITURE IN THE THERMAL SEPARATION OF HYDROCARBON MIXTURES USING A SEQUENCE OF HEAT INTEGRATED DTSTJLLA TON COLUMNS</td>
<td>73</td>
</tr>
<tr>
<td>M. Mackowski, M. Trafczynski and K. Urbaniec</td>
<td></td>
</tr>
<tr>
<td>ENERGY TARGETING OF AUTO REFRIGERATION PROCESSES WITH REFERENCE TO LNG PRODUCTION</td>
<td>79</td>
</tr>
<tr>
<td>A.F.A. Hoadley and C.C. Remeljej</td>
<td></td>
</tr>
<tr>
<td>ROBUST CONCEPTUAL DESIGN OF A RESIDUAL INDUSTRIAL WASTE HEAT DISTRICT HEATING SYSTEM</td>
<td>85</td>
</tr>
<tr>
<td>A.N. Ajah, A.C. Patit and P.M. Herder</td>
<td></td>
</tr>
<tr>
<td>OPTIMUM WASTE INTERCEPTION WITH ENERGY INTEGRATION TARGETS</td>
<td>91</td>
</tr>
<tr>
<td>A. Hamad</td>
<td></td>
</tr>
<tr>
<td>PROCESS INTEGRATION OPPORTUNITIES IN THE PLASTIC WASTE TO PLASTIC PRODUCTION CHAIN</td>
<td>97</td>
</tr>
<tr>
<td>K.H. Kaggerud, 1.L. Sisjord, U.J. Musdalsllln and T. Gundersen</td>
<td></td>
</tr>
<tr>
<td>ENERGY INTEGRATION OF THE EARLY CRUDE OIL UNITS WITH TAKE INTO ACCOUNT DIFFERENT REGIMES</td>
<td>103</td>
</tr>
<tr>
<td>L. Ivazulyansky, P. Kapuslenko, L. Ulyev, S. Uoldytyev and M. Tamovsky</td>
<td></td>
</tr>
<tr>
<td>AMMONIA PLANT INTEGRATION USING COMBINED CHEMICAL REACTOR ENERGY INTEGRATION AND PINCH ANALYSIS</td>
<td>109</td>
</tr>
<tr>
<td>E.O. Lavric, K. .Elst, J. De Ruyck, V. Plesu and V. Lavric</td>
<td></td>
</tr>
</tbody>
</table>
OPTIMIZATION OP THE ENERGY DEMAND OF BIO-ETHANOL PRODUCITON BY PROCESS INTEGRATION
M. Pfeffer, W. Wukovits and A. Friedl
AN MILP MODEL FOR HEAT EXCHANGER NETWORKS RETROFIT
A. Barbaro, M. Gajewicz., N. Vipanurat and J<. Siemaniold
IMPACT OF ECONOMIC CRITERIA AND COST UNCERTAINTY ON HEAT EXCHANGER NETWORK DESIGN AND RETROFIT
N. Donnclly.J. Klcmcsanu S.J, Pcrry
ENERGY INTEGRATION: DESIGN OF STABILIZER UNJT AND RETROFIT OF GAS SEPARATION UNIT
P. Suwarnnpišil, K. Sicrrumond, V.E. Tham.mongkol and N.T. Kanongchayiot
THE ANALYSIS OF ENERGY UTILIZATION IN PROCESSES FOR SEWAGE SLUDGE TREATMENT
J. Boran, L. Joudkova, V. Ucckaj, P. Stasta and P. Stehlik
POSSIBILITIES OF W ASTE ENERGY UTILIZATION IN LITUANIAN INDUSTRIAL COMPANIES
I. Kllopoova
DESIGN OF HEAT INTEGRATED DISTILLATION SYSTEMS FOR A LIGHT ENDS PLANT
M. Masda. F. Ferra, A. A vacca and C. Tola
COMPUTATIONAL APPROACH FOR EFFICIENT ENERGY UTILIZATION IN PROCESS INDUSTRY
M. Pavlas, P. Stchlik and J. Orni
NOVEL ENERGY SAVING TECHNOLOGIES ASSESSMENT BY EMINENT EVALUATION TOOL
J. Klemes, N. Zhelig, L Bulント, P. ]atisén nd J. Koppcian
RETROFIT SOLUTION IN CRUDE DISTILLA TION PLANT USING PROCESS SIMULATION AND PROCESS INTEGRATION SUSTAINABILITY
V. Plesu, G. Bumbac, C. Tacc mnrcov, I. Jvruıcscu and D. C. Popescu
BEYOND PROCESS SYNTHESJS - OPTIMIZING REGIONAL ENERGY SYSTEMS
A. Niederl, L. J Ialas and M. Nrrodoslawsky
A NOVEL DESIGN METHOD LEADING TO RENEWABLE ENERGY FROM SEA AND RIVER WATER: TI-IE CONCEPIUAL DESIGN OF A 100 MW BLUE ENERGY PLANT IN THE NETHERLANDS
M. Ter Mculen, IL Klccn and j . Iumsen
ETHANOL AND BIOFUELS: A POSSSTBLE SOLUTION FOR SUSTAINABLE ENERGY AND DEVELOPMENT
V. Naso. S. Simoru, G. Bungaro ;md G Mattei
IDENTIFICATION OF THE EMERGING, ENERGY-RELATED RESEARCH ISSUES IN THE STUDIES ON SUSTAINABLE DEVELOPMENT
A. J rsniświci
ON THE SUSTAINABILITY OF AN INFTEGRATED MODEL SYSTEM WITH INDUSTRIAL, ECOLOGICAL, AND MACROECONOMIC COMPONENTS
HYBRID PROCESSES, PROCESS INTENSIFICATION PROCESS FOR THE CONTINUOUS PRODUCTION OF FATIY ACID ESTERS VIA REACTIVE DISTILLATION AND PERVAPORA TION
C. von Scala, Pa. Faessler, E. Maus, O. Bailer, J. Gerla and I. Meszaros
PROCESS ANALYSIS OF HYBRID MEMBRANE SEPARATION PROCESSES
P. Kreis and A. Gorak
KINETICS OF DIMERIZATION OF ISOBUTYLENE IN THE PRESENCE OF ION EXCHANGE RESIN
S. Talwalkar, M. Chauhan, P. Aghalayam, S. Mahajani, Z. Qi and K Sundmacher
NOVEL HEAT INTEGRATION CONCEPTS FOR HYBRID DISTILLATION/PERVAPORATION PROCESSES
R. Zerry, J.U. Rcpke, M. Vusterhausen and G. Wozny
OPTIMAL SAMPLING STRATEGY FOR THE ESTIMATION OF DISPERSION PARAMETERS IN SOIL COLUMNS
F. Catania and O. Paladino

115
121
127
133
139
145
151
157
163
169
175
179
185
193
195
201
207
213
219
225
CARBON DIOXIDE ABSORPTION WITH CHEMICAL REACTION IN AQUEOUS SOLUTIONS OF CALCIUM I-HIDROXIDE IN A BUBBLE COLUMN
D. Gomez, J.M. Navaza and E. Sanjurjo

SULPHUR DIOXIDE ABSORPTION IN AQUEOUS SOLUTIONS OF CALCIUM HYDROXIDE
D. Gomez, J.M. Navaza and B. Sanjutjo

DEVELOPTING A DYNAMIC SIMULATION
D. Via, M. Laflamme-Mayer, M. Puirrier and P. Stuart

OPTIMIZING THE MANUFACTURING CONDITIONS FOR ACTIVATED CARBON FROM TURKISH COAL USING CHEMICAL REACTION IN A BUBBLE COLUMN

AN ADVANCED MODEL OF VISBREAKING PROCEESS
G. Bozzano, M. Dente, M. Sinatra and G. Conti

HYDROGEN PRODUCTION: COMBINATION OF AUTOTHERMAL REFORMING AND INNOVATIVE CATALYSTS STARTING FROM LIGHT HYDROCARBONS
G. Jaquanicillo, A. Mijligiapanc, P. Cumbellli, V. Palma and E. Palo

DEVELOPMENT OF A DYNAMIC SIMULATION
D. Via, M. Laflamme-Mayer, M. Puirrier and P. Stuart

OPTIMIZING THE MANUFACTURING CONDITIONS FOR ACTIVATED CARBON FROM TURKISH COAL USING CHEMICAL REACTION IN A BUBBLE COLUMN

AN ADVANCED MODEL OF VISBREAKING PROCESSES
G. Bozzano, M. Dente, M. Sinatra and G. Conti

HYDROGEN PRODUCTION: COMBINATION OF AUTOTHERMAL REFORMING AND INNOVATIVE CATALYSTS STARTING FROM LIGHT HYDROCARBONS
G. Jaquanicillo, A. Mijligiapanc, P. Cumbellli, V. Palma and E. Palo

UNCOUPLING CR(VI) REDUCTION IN A DUAL-SPECIES BACTERIAL CULTURE SYSTEM: ELECTRON-FLOW PATHWAY ANALYSIS
E.M.N. Chlrwa

ANALYTICAL MODELING OF FILTRATION COMBUSTION IN PACKED BED
V. Bubnovich and M. Toledo

IS POST-SEPARATION MIXING OF RAW MATERIALS AND RECYCLE BETTER FOR AMMONIA SYNTHESIS LOOP?
G. Bumbac, C Giomel, E.O. Lavric, J. De Ruydç, V. Lavric and F. Costantinescu

COMPARISON OF CATALYSTS FOR FCC GASOLINE DESULPHURIZATION
S. Magyar and J. Honcsok

EFFECT OF FATTY ACID COMPOSITION ON THE QUALITY OF FATTY ACID METHYL ESTERS IN ENZYMATIC TRANSESTERIFICATION
J. Hancsok, H. Kovacs, M. Krar, S. Magyar and M. Nemcnyi

REACTIVE SEPARATIONS FOR INDUSTRY OF THE FUTURE ADVANCED COLUMN MODELLING FOR REACTIVE EXTRACTION
H.J Bart, S.A. Schimidt end M. Attarakih

REACTIVE BATCH DISTILLATION IN UNCONVENTIONAL COLUMN CONFIGURATIONS: START-UP AND OPTIMAL OPERATION
H. ArcJano Corda, I. Carmona and G. Wozny

DIMERSATION OF ISOBUTYLENE IN A REACTIVE DISTILLATION COLUMN: PROCESS ANALYSIS AND COMPARISON WITH CONVENTIONAL REACTOR CONCEPTS
R. Krunath, Z. Qi, K. Sundmacher, P. Aghalayam and S. Mwjani

CONCEPTUAL DESIGN OF FINISHING REACTIVE DISTILLATION COLUMNS
G. Dnnicl, M. Jobson and R. Dragomir

DESIGN AND OPTIMIZATION OF COMPLEX SEPARATION PROCESSES USING ORTHOGONAL COLLOCATION ON FINITE ELEMENTS MODELING TECHNIQUES
N. Dalaouti and P. Seferlis

SYNTHESIS AND GLOBAL OPTIMIZATION OF REACTOR SEPARATION NETWORKS (RSN) VIA NLP PROCEDURES: PEM FUEL CELL SYSTEM

SEPARATION OF MAXIMUM AZEOTROPES BY EXTRACTIVE DISTILLATION IN A MIDDLE-VESSEL COLUMN
B. Kotai and P. Lang
EXTRACTIVE DISTILLATION: PREDICTION OF THE VAPOUR-LIQUID EQUILIBRIUM DATA OF MULTI-COMPONENT SYSTEMS

E. Graczova, P. Steltenpohl and S. Baflmcova

PROCESS SIMULATION AND CFD CALCULATIONS FOR THE DEVELOPMENT OF AN INNOVATIVE BALED BIOMASS-FIRED COMBUSTION CHAMBER

M. MJltner, A. Kerschbaum, C. Jord.n, M. Harasek and A. Friedl

THE USE OF WASTE SLAG OF A ZINC RECOVERY PLANT FROM BRASS AND GALVANIZING TAILINGS AS AGGREGATE IN CONCRETE

H. Oguz and A. Karagoz Ozturk

MULTIOBJECTIVE WASTE MANAGEMENT UNDER UNCERTAINTY IN EXISTING FACILITIES

L Cavin, U. Fischet and K. Hungerbuhler

SOLID WASTE AND CARBON WASTE GENERATION IMPACT

M. Tellni. R Del Rosso and P. Centola

PROCF5S IN DEVELOPMENT OF A NOVEL SEMI-EMPJRICAL NOX MODELLING APPROACH

V. Kermes, J. Haiek, P. Stehlik, L. Bcbar and J. Oral

NEW DESIGN IN OFF-GAS CLEANING SYSTEMS SUPPORTED BY EXPERIMENTAL AND COMPUTATIONAL APPROACH

M. Filip, J. Bucht.a, L. Noar a.nd P. Stehlik

STMULATION OF THE SCRUBBING UNIT WASTE INCINERATION PLANT USING CHEMCAD

A.M. Cormos, C. Cormos, A. Friedl and S. Agachi

REMOTE CONTROL OF EQUIPMENT FOR THERMAL TREATMENT OF WASTE GASES WITH THE AID OF SOFTWARE SYSTEM "CONTROL WEB"

387

P. Cagas, R. Dvomk and P. Stehlik

g;PROMS: AN ADVANCED TOOL FOR RESEARCH AND TEACHING ON PROCESS MODELING, SIMULATION, DESIGN, CONTROL AND OPTIMIZATION

393

I. Georgiadis, A. Giovanoglou, E. Pistikopoulos, J. Palacin-Linan and C. Pantelides

THE USE OF COMPUTER ASSISTED PROBLEM BASED eLEARNING IN ACHIEVING TEACHING OUTCOMES IN ENGINEERING EDUCATION

399

S.J. Perry and J. Klemes

WEB BASED DISTANCE LEARNING POR CPD

J.W. Ponton

SCORM-BASED CONTENT DELIVERY AND E-LEARNING PLATFORM FOR CHEMICAL ENGINEERING EDUCATION IN UNIVERSITY 'POLITEHNICA' OF BUCHAREST

413

A.M. Josceanu, R. Isopescu and V. Plesu

TIIE EUPACE.NET GUIDELINES FOR E-LEARNING IN PROCESS AND CHEMICAL ENGINEERING

419

G. Wozny, C. Hausmanns, L. Urbas and B. Gauss

COMPUTATIONAL TOOLS FOR HEAT TRANSFER EQUIPMENT IN PROCESS INDUSTRY

425

B. Kilkovsky, Z. Jegla, J. Kohoutek and P. Stehlik

E-LEARNING INTERACTIVITY APPROACH IN CHEMICAL ENGINEERING EDUCATION

431

R. Onofrej, A.M. Josceanu, P. Postelnicea and V. Plesu

CLUSTERED LABORATORY-ASSISTED TEACHING IN INTEGRATED PROCESS ENGINEERING

437

T. Zhelev and S. Zheleva

SPIONEXCEL - FAST AND EASY CALCULATION OF THE SUSTAINABLE PROCESS INDEX VIA COMPUTER

443

D. Sandholzer, A. Niederl and M. Narodolslawsky

PROCESS EFFICIENCY BY COMPREHENSIVE PROCESS INTEGRA TION

447

M. Hurme, M. Tuomaala and P. Ahtila

TIIE CONCEPTUAL DESIGN APPROACH - A PROCESS INTEGRA TION APPROACH ON THE MOVE
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCESS INTEGRATION AND PROCESS DESIGN</td>
<td>459</td>
</tr>
<tr>
<td>N. Nyathi and T. Majoz</td>
<td>465</td>
</tr>
<tr>
<td>DEVELOPMENT OF A UNIFIED MASS AND HEAT INTEGRATION FRAMEWORK FOR SUSTAINABLE DESIGN -AN AUTOMATED APPROACH</td>
<td></td>
</tr>
<tr>
<td>A. Moodley and T. Majoz</td>
<td>471</td>
</tr>
<tr>
<td>AN ENERGY MANAGEMENT METHOD FOR THE FOOD INDUSTRY</td>
<td></td>
</tr>
<tr>
<td>D. Muller, F. Marechal, T. Wolewinski and P. Roux</td>
<td>477</td>
</tr>
<tr>
<td>ECO-FRIENDLY SCHEME FOR THE PRODUCTION OF CANE RAW SUGAR</td>
<td></td>
</tr>
<tr>
<td>G. Vaccari, E. Tamburini, T. Bemardi and G. Sgualdino</td>
<td>483</td>
</tr>
<tr>
<td>MODEL OF A SUGAR FACTORY WITH BIOETHANOL PRODUCTION IN PROGRAM SUGARS TM</td>
<td></td>
</tr>
<tr>
<td>S. Henke, Z. Bubnik, P. Kadlec, A. Hinkova and V. Pour</td>
<td>489</td>
</tr>
<tr>
<td>SENSITIVITY ANALYSIS OF NETWORK SYNTHESIS MODELS -THE CASE OF ANIMAL RESIDUE UTILIZATION</td>
<td></td>
</tr>
<tr>
<td>A. Niederl, L. Halasz and A. Nagy</td>
<td>503</td>
</tr>
<tr>
<td>NEW PROCESS FOR GELATINE PRODUCTION USING OF AN INNOVATIVE TECHNOLOGY ACHIEVING AN IMPORTANT REDUCTION OF THE ENVIRONMENTAL IMP ACT</td>
<td></td>
</tr>
<tr>
<td>X. Ribas Canals, J. Muxach Navarro, M. Junca Riuro and P. Simonsen</td>
<td>509</td>
</tr>
<tr>
<td>ENVIRONMENTAL MANAGEMENT MEASURES AND PROCESS-BASED METHODS AS THE TOOLS FOR IPP IMPLEMENTATION IN SLAUGHTERHOUSE INDUSTRY: LITHUANIAN CASE STUDY</td>
<td></td>
</tr>
<tr>
<td>D. Januskevicius and D. Pamakstys</td>
<td>515</td>
</tr>
<tr>
<td>EVALUATION OF THE OPERATIONAL CHANGES AND ITS IMPLICATION IN A WASTEWATER TREATMENT POND FROM A GELATIN INDUSTRY</td>
<td></td>
</tr>
<tr>
<td>L.B. Pissinatto, J.C. Zambelle, H. Ota, N.L. Ferreira and R. Guirardello</td>
<td>521</td>
</tr>
<tr>
<td>PROJECT DEVELOPMENT OF CO-PRODUCTION OF HOT AND COLO THERMAL ENERGY FOR SMALL DAIRY PLANT USING INNOVATIVE CLEAN TECHNOLOGY FROM BIOMASS WASTE</td>
<td></td>
</tr>
<tr>
<td>P.V. Pannirselvam, G. Mattei, S. Simoni, B. H. S. Santiago and M. R. Fernandes</td>
<td>529</td>
</tr>
<tr>
<td>INVESTIGATION OF PERMEABILITY DURING COMPRESSION DEWATERING OF LIGNITES AND BIOMASS</td>
<td></td>
</tr>
<tr>
<td>USING LIFE CYCLE ASSESSMENT (LCA) AS A TOOL TO ENHANCE ENVIRONMENTAL IMPACT ASSESSMENTS (EIA)</td>
<td></td>
</tr>
<tr>
<td>F. Cornejo, M. Janssen, C. Gauldreault, R. Samson and P. Stuart</td>
<td>541</td>
</tr>
<tr>
<td>SILOXANE REMOVAL FROM BIOGAS TOWARDS USAGE IN FUELCELLS</td>
<td></td>
</tr>
<tr>
<td>F. Accettola, P. Holubar and R. Schoeftner</td>
<td>547</td>
</tr>
<tr>
<td>APPLICATION OF THE TAGUCHI METHOD IN THE EVALUATION OF MECHANICAL FLOTATION IN WASTE ACTIVATED SLUDGE THICKENING</td>
<td></td>
</tr>
<tr>
<td>B. Du Plessis and G. De Villiers</td>
<td>553</td>
</tr>
<tr>
<td>EMISSIONS, CO2, LCA EFFICIENCY OF AN IGCC POWER PLANT INCLUDING CO2 REMOVAL</td>
<td></td>
</tr>
<tr>
<td>C. Descamps, C. Bouallou and M. Kanniche</td>
<td>559</td>
</tr>
<tr>
<td>A PROCEDURE FOR THE CALCULATION OF CO2 SEQUESTRATION CAPACITY IN COAL BEDS</td>
<td></td>
</tr>
<tr>
<td>G. Di Federico and S. Brandani</td>
<td></td>
</tr>
<tr>
<td>IMPACT AND IMPLICATION OF EMISSION TRADING IN SLOVENIA</td>
<td>565</td>
</tr>
<tr>
<td>E. Kranjcevic</td>
<td></td>
</tr>
<tr>
<td>LIFE-CYCLE GREENHOUSE GAS, NOX AND 502 EMISSIONS FROM POWDERED COAL/BIOMASS CO-FIRING FOR POWER GENERATION</td>
<td></td>
</tr>
<tr>
<td>C. De Carolis, R. Tan, S. Santos, E. Foppa Pedretti and G. Riva</td>
<td></td>
</tr>
<tr>
<td>ON POLLUTION MINIMIZATION IN THE OPTIMIZATION MODELS OF PROCESS NETWORK SYNTHESIS</td>
<td></td>
</tr>
<tr>
<td>C. Imreh and Z. Kovacs</td>
<td></td>
</tr>
</tbody>
</table>
REDUCTION OF CO2 EMISSIONS BY CALCIUM CARBONATE PRODUCTION FROM CALCIUM SILICATES 571
S. Teir, S. Eloneva and R. Zevenhoven
POSSIBLE OPTIMAL CONFIGURATIONS FOR THE ZECOMIX HIGH EFFICIENCY ZERO EMISSION HYDROGEN AND POWER PLANT 577
A. Calabro, P. Deiana, P. Fiorini, S. Stendardo and G. Girardi
THE CORROSION SENSITIVITY OF CO2 IN METHANOL PROCESS USING NLP MODEL 583
A. Kovac Kralj and P. Glavic
EFFECT OF GLUCOSE AND GLUCOSAMINE UPON THE CARBON DIOXIDE ABSORPTION 589
D. Gomez Diaz, J.M. Navaza and L. Vazquez-Orgeira
CARBON DIOXIDE - WATER IN OIL MICRO EMULSIONS MASSTRANSFER PROCESS. EFFECT OF PERCOLATION PHENOMENON 595
D. Gomez Diaz, J.C. Mejuto, J.M. Navaza and B. Sanjurjo
LCA OF STRIPPABLE COATINGS AND OF PRINCIPAL COMPETING MATERIAL USED IN NUCLEAR DECOMMISSIONING 601
F. Curno, L. De Santoli and G. Guidi
TIME SERIES ANALYSIS IN CHARACTERIZATION OF PROCESS DATA 607
J. Drahos and M.C. Ruzicka
PETROCHEMICAL PLANTS CAPACITY UP-RATING BY APPLICATION OF TWISTED TUBE HEAT EXCHANGERS TECHNOLOGY 615
J. Lutcha and J. jelinek
DEVELOPMENT OF A ONE-DIMENSIONAL NUMERICAL MODEL OF AN ISOOCTANE CATALYTIC AUTO THERMAL REFORMER 621
V. Li, P. Oosthuizen, S. Harrison and B. Peppley
THE FEATURES OF CALCULA TION AND ADJUSTING OF STEAM-HEATED PLATE HEAT EXCHANGERS 627
I. Tovazhnyansky, P. Kapustenko, G.L. Khavin and O.P. Arsenyeva
A NUMERICAL STUDY OF THE EFFECT OF A PARIALLYCLOSED PLANE BLIND ON THE CONVECTIVE HEAT TRANSFER FROM A WINDOW TO A ROOM 633
P. Oosthuizen
MEASUREMENTS OF HEAT TRANSFER OF MULTI-LAYERED WALL CONSTRUCTION WITH FOAM GYPSUM 639
J. Skujans, A. Vulans, U. Iljins and A. Aboltins
HEATING AND COOLING USING RENEWABLE ENERGY SOURCES AND ENERGY EFFICIENCY 645
B. Thonon
SURFACE FINISH EVALUATION OF PROCESS SURFACES USED IN FOULING APPLICATIONS 651
D.J. Kukulka and M. Devgun
BOILER CONTROLLER DESIGN USING DYNAMIC OPTIMISATION 657
M. Rodriguez, A. Bandoni and S. Diaz
MODELING THE ENERGY CONSUMPTION OF CHEMICAL BATCH PLANTS - TOP-DOWN AND BOTTOM-UP APPROACH 663
P. Bieler, A. Szijjarto, U. Fischer and K. Hungerbuhler
MINIMISATION OF OPERATING (ENERGY) COST, OPTIMAL DESIGN AND OPERATION UNDER FIXED PRODUCT DEMAND SCENARIO IN INVERTED BATCH DISTILLATION COLUMN 669
A. Masoud and I. Mujtaba
AN EXPERT SYSTEM FOR CLEANER PRODUCTION IN BATCH PROCESSES 675
I. Halim and R. Srinivasan
GENERALISED METHOD FOR THE CALCULATION OF RESIDUE CURVES OF BATCH HETEROAZEOTROPIC DISTILLA TION 681
P. Lang and G. Modla
OPTIMUM STORAGE DESIGN FOR OPTIMUM FRESH WATER USE IN MULTIPURPOSE BATCH PLANTS
T. Majozi

INSTRUMENTATION AND ON-LINE IDENTIFICATION OF THE WOOD DRYING SYSTEMS FOR THE PREDICTIVE CONTROL APPLICATIONS
S. Tarasiewicz

PENETRATION MODEL FOR CONTACT DRYING OF AGITATED SEWAGE SLUDGE
P. Arlabosse

PRODUCT REMOVAL FROM THE SURFACE OF INERT PARTICLES IN A SPOUTED BED DRYER
V.E. Kutsakova

RETENTION OF ASCORBIC ACID DURING DRYING OF TOMATO HALVES AND TOMATO PULP
A. Goula and K Adamopoulos

ENERGY SAVINGS DRYING PROCESS FOR LUMBER
J. De Vore

MODEL-BASED ESTIMATE FOR THE TIME-DEPENDENT APPARENT DIFFUSIVITY
G. Efremov and T. Kudra

SOLIDS TRANSPORT IN A PILOT-SCALE ROTARY KILN: COMPLEMENTARY EXPERIMENTAL RESULTS
N. Descoins and J.L. Dirion

THERMAL Y-ASSISTED MECHANICAL DEWATERING: STATE-OF-THE-ART AND NEW DEVELOPMENTS
A. Fernandez, P. Arlabosse and N. Descoins

A NEW MATHEMATICAL PROGRAMMING APPROACH FOR THE OPTIMAL DESIGN OF WASTEWATER TREATMENT SYSTEMS
P. Castro, H. Matos and A. Novais

RECOVERING OF COMBUSTIBLE AND WATER FROM HYDROCARBON WASTEWATER FROM TANK WASHING
E. Gonzalez, A. Rodriguez, D. Lorenzo, C. Prado and J. Tojo

COST-BASED WATER NETWORK OPTIMIZATION BY GENETIC ALGORITHM
V. Lavric, P. Iancu, V. Plesu, I. Ivanescu and M. Ilie

SIMPLIFIED MODEL FOR THE DETERMINATION OF THE STEADY STATE RESPONSE OF COOLING NETWORKS
C. Nila Gasca, M. Picon Nunez and A. Morales Fuentes