

72nd Annual Technical Conference of the Society of Plastics Engineers (ANTEC 2014)

The Plastics Conference

**Las Vegas, Nevada, USA
28 – 30 April 2014**

Volume 3 of 3

ISBN: 978-1-63439-708-7

VOLUME 3

CHEMICAL RESISTANCE ADVANTAGES OF TRITAN™ COPOLYESTERS FOR MEDICAL APPLICATIONS - ONCOLOGY DRUG CASE STUDY	1832
<i>Y. Liu, L. Paslay, R. Martin</i>	
CHEMICAL RESISTANCE EVALUATION OF MEDICAL GRADES EASTMAN TRITAN™ COPOLYESTER AND POLYCARBONATE	1837
<i>S. Givens</i>	

DEVELOPMENT OF AN ABSORBABLE MAGNESIUM-POLYMER FUSION CAGE FOR THE CERVICAL SPINE	1842
<i>C. Hopmann, T. Kauth, D. Kaltbeitzel, D. Daentzer, B. Welke, C. Hurschler, B. Kujat</i>	
GAS PLASMA FOR MOLECULAR RE-ENGINEERING OF MICROFLUIDIC DEVICES	1847
<i>M. Larner, K. Sahagian</i>	
HIGH FLOW POLYCARBONATE COPOLYMERS FOR MEDICAL APPLICATIONS	1854
<i>M. Bihari, J. Malinoski, H. Brouwer</i>	
HYDROGELS FOR ARTERIAL MODELLING AND TISSUE SCAFFOLDING	1859
<i>A. Dunne, A. Coffey, N. Murphy, P. Walsch, R. Walsh, S. Lyons</i>	
THE INFLUENCE OF ATMOSPHERIC PRESSURE PLASMA SURFACE-MODIFIED POLYMERS PVDF, ECTFE, AND PEEK ON PRIMARY MESENCHYMAL STEM CELL RESPONSE	1865
<i>T. Spence, J. Pellegrino, J. Ricci, P. Coelho</i>	
MAXIMIZATION OF HYDRAULIC FLOW IN SMALL FLEXIBLE POLYMER TUBING BY STIFFNESS AND WALL THICKNESS OPTIMIZATION UTILIZING HARDNESS AND GLASS & CARBON NANO TUBES FILLERS	1873
<i>C. Chipman, A. Boardman</i>	
MODIFIED PEBA FOR DIRECT ADHESION TO EFEP	1882
<i>S. Fleming, J. Felton</i>	
MOISTURE DETERMINATION OF SPECIALTY RESINS USING RELATIVE HUMIDITY SENSOR TECHNOLOGY; A SOLVENT-FREE ALTERNATIVE TO KARL FISCHER TITRATION	1885
<i>J. Moore</i>	
POLYPROPYLENE AND POLYPROPYLENE-SEBS BLENDS FOR MEDICAL FILMS	1889
<i>M. Sandholzer, K. Klimke, K. Bernreitner</i>	
POLYURETHANES IN CARDIAC DEVICE LEADS: EFFECT OF MORPHOLOGY ON PERFORMANCE	1893
<i>A. Padsalgikar, G. Gallagher, E. Cosgriff-Hernandez, J. Runt</i>	
RADIATION-STERILIZATION OF NEW MEDICAL RESINS IN OXYGEN-FREE PACKAGING	1900
<i>P. Moulinie</i>	
RADIOPAQUE FILLER ENHANCES NANOCOMPOSITE CATHETER SHAFT PERFORMANCE	1905
<i>A. Nilajkar, C. O'Neil, L. Acquarulo</i>	
THERMO-SENSITIVE COPOLYMERS FOR THE TREATMENT OF ARTERIAL ANEURYSMS	1911
<i>A. Poudel, A. Coffey, S. McGrath, D. Kelly, S. Lyons, N. Murphy, P. Walsh</i>	
CEMENTED TUNGSTEN CARBIDE: AN INNOVATIVE MATERIAL FOR CUSTOM CORE PINS IN THE PLASTIC INJECTION MOLDING INDUSTRY	1919
<i>F. Rymas</i>	
CLEAN AND COST-SAVING: NEW DEVELOPMENTS FOR MEETING MEDICAL MOLDING CHALLENGES	1924
<i>A. Hickok</i>	
DATA DRIVEN DECISION MAKING FOR THE INJECTION MOLD DESIGNER	1930
<i>K. Rumore</i>	
THE DEVELOPMENT OF A CAD/CAE INTEGRATED WIZARD DESIGN SYSTEM FOR INJECTION MOLD	1937
<i>Z. Huang, B. Hou, S. Cui, H. Zhou</i>	
THE EFFECT OF TEMPERATURE UNIFORMITY AND SURFACE FINISH ON COLOR CHANGE PERFORMANCE OF HOT RUNNER SYSTEMS	1942
<i>J. Wirwille, S. Johnston, V. Galati, W. Rousseau</i>	
M2M, BIG DATA AND INJECTION MOLDS	1948
<i>T. Knight</i>	
NEW METHODS FOR PRODUCING ENERGY SAVINGS WHEN USING HOT RUNNER SYSTEMS	1955
<i>P. Boettger</i>	
NEW STAINLESS MOLD BASE STEEL WITH HIGH MACHINABILITY AND IMPROVED THERMAL CONDUCTIVITY	1961
<i>R. Esling, V. Ngomo, P. Britton</i>	
NOVEL APPROACH IN FABRICATION OF PRINTED METAL TOOLING	1966
<i>L. Sit, J. Acevedo, M. Kumbhani, J. Shearer, J. Mead, C. Barry</i>	
COMPARISON OF MICROSTRUCTURED SURFACES USING INJECTION MOLDING AND NANOIMPRINT LITHOGRAPHY	1971
<i>M. Vega, S. Birkar, J. Mead, C. Barry</i>	

DIMENSION-DEPENDENT LONG-TERM PROPERTIES OF INJECTION MOLDED MICRO PARTS	1976
<i>S. Meister, D. Drummer</i>	
EFFECT OF FEATURE SPACING WHEN INJECTION MOLDING PARTS WITH MICROSTRUCTURED SURFACES	1983
<i>S. Birkar, J. Park, J. Mead, C. Barry</i>	
FLOW LENGTH ANALYSIS OF MICRO PARTS IN OPTICAL POLYMERS	1988
<i>C. Brandao, O. Riemer, E. Brinksmeier</i>	
INNOVATIVE PLASTICIZING METHOD FOR MICRO INJECTION MOLDING	1992
<i>C. Hopmann, T. Fischer</i>	
MICROMANUFACTURING OF CONSISTENT MICRO PETRI DISH BIOINTERFACES TO GUIDE STEM CELL MECHANOTRANSDUCTION	1996
<i>J. Rodgers, M. Casey, Z. Miller, S. Jedlicka, J. Coulter</i>	
FLAME RETARDANT POLYPROPYLENE COPOLYMER AND EVA BLENDS FILLED WITH MICRO- AND NANOPARTICLES OF MAGNESIUM HYDROXIDE	2003
<i>O. Rodriguez-Fernandez, G. Morales, C. Espinoza-Gonzalez, I. Yanez-Flores, J. Bocanegra, R. Benavides, C. Tena</i>	
INFLUENCE OF MINERAL FILLERS ON THE FLAME RETARDANCY OF EXPANDABLE GRAPHITE / POLYPROPYLENE MATERIALS	2008
<i>H. Mattausch, M. Leoben, S. Laske, D. Hohenwarter, C. Holzer</i>	
COOLING SIMULATION FOR THE PREDICTION OF QUALITY PROPERTIES AND PRODUCTION COSTS OF SEMI-FINISHED EXTRUDED PRODUCTS LIKE PIPES	2012
<i>P. Weiss, G. Hiesgen, K. Saul, M. Spitz</i>	
DEVELOPMENT AND ASSESSMENT OF A PHASED ARRAY ULTRASONIC INSPECTION SYSTEM FOR POLYETHYLENE PIPE JOINTS	2016
<i>M. Troughton, M. Spicer, F. Hagglund</i>	
INVESTIGATION OF DEGRADATION MECHANISM BY COPPER CATALYTIC ACTIVITY AND MECHANICAL PROPERTY OF POLYETHYLENE PIPES FOR HOT WATER SUPPLY	2022
<i>D. Tanemura, K. Yamada, H. Nishimura, K. Igawa, Y. Higuchi</i>	
PIPE ANALYSIS FOR A LONG, DEEP DIRECTIONALLY BORED INSTALLATION UNDER AN ACTIVE AIRFIELD IN PORTLAND, OREGON	2027
<i>T. Marti, R. Botteicher</i>	
VALIDATION OF POLYETHYLENE PIPE IN POTABLE WATER SYSTEMS	2033
<i>K. Oliphant, P. Vibien, S. Chung, M. Conrad</i>	
THE INFLUENCE OF PRINTING INKS ON THE CONFORMANCE OF RECYCLED POLYPROPYLENE TO US AND EU FOOD GRADE STANDARDS	2037
<i>E. Kosior</i>	
INVESTIGATING THE EFFECT OF SUPERCRITICAL CO₂ ON THE SIMULATED RECYCLING OF POLYPROPYLENE	2042
<i>S. Pilla, X. Sun, L. Turng</i>	
PLANT GROWTH RESPONSES IN POLYPROPYLENE – BIOCOMPOSITE CONTAINERS	2047
<i>B. Tisserat, L. Reifschneider</i>	
THERMAL, MECHANICAL AND WATER ABSORPTION PROPERTIES OF THERMAL PROCESSED MEAT AND BONE MEAL BIOPLASTICS MODIFIED WITH MALEIC ANHYDRIDE	2052
<i>S. Lukubira, A. Ogale</i>	
3D CHARACTERIZATION OF COMPRESSION MOLDED HDPE/WOOD FIBER COMPOSITES	2056
<i>U. Saeed, G. Rizvi</i>	
EFFECT OF SURFACE TREATMENT ON THE MECHANICAL PROPERTIES OF WOOD-PLASTICS COMPOSITES PRODUCED BY DRY-BLENDING	2060
<i>A. Verdaguer, D. Rodrigue</i>	
ENABLING DURABLE POLYMER SHEET AND FILMS FOR BUILDING AND CONSTRUCTION APPLICATIONS	2065
<i>S. Andrews, M. Grob, W. Wunderlich</i>	
FACTORS IMPACTING FORMULATION DEVELOPMENT OF EXTRUDED POLYSTYRENE FOAM	2070
<i>R. Smith, J. Alcott, M. Mazor</i>	
HYBRID COMPOSITE MATERIALS MADE OF POLYPROPYLENE WITH WOOD AND POLYETHYLENE TEREPHTHALATE FIBERS	2078
<i>H. Heim, A. Ruppel, A. Mamun</i>	
IMPORTANT FACTORS IMPACTING THE PERFORMANCE OF POLYOLEFIN PIPES	2083
<i>M. Grob, A. Thuerner, R. King III</i>	

MOISTURE PERFORMANCE OF WOOD-PLASTIC COMPOSITES REINFORCED WITH EXTRACTED AND DELIGNIFIED WOOD FLOUR	2088
<i>Y. Chen, N. Stark, M. Tshabalala, J. Gao, Y. Fan</i>	
RECYCLED POLYMERS IN INJECTION MOLDED PP RIDGE VENTS	2093
<i>S. Raikar, W. Zarate, P. Campbell, C. Lake, J. Avitabile, L. Peels</i>	
AQUEOUS COLLOIDAL SUSPENSIONS OF POLYMERS FOR CONFORMAL COATINGS	2097
<i>M. Sobkowicz, B. Tan</i>	
ASPECTS OF PHYSICAL AGING AND THERMAL ANNEALING IN A NEW COPOLYESTER	2101
<i>A. Cugini, A. Lesser</i>	
BINARY BLENDS OF CYCLOOLEFIN COPOLYMERS	2107
<i>E. Unsal, A. Xue, Y. Patil, H. Pham, A. Poslinski</i>	
CHARACTERIZATION OF RECYCLED CARPET SAMPLES BY TG-FTIR, TG-MS, AND TG-GC-MS	2114
<i>P. Shapiro, C. Fischer</i>	
CHEMICAL IDENTIFICATION AND TGA FLYNN-WALL THERMAL SERVICE EVALUATION OF THREE COMMERCIAL JACKETED IGNITION CABLES	2118
<i>R. Smith, D. Freer</i>	
DEVELOPMENT OF HYBRID MAGNETIC NANOPARTICLES AIMED TO COLLECT CRUDE OIL IN AQUEOUS ENVIRONMENTS	2125
<i>A. Pavia-Sanders, J. Flores, J. Sanders, J. Raymond, K. Wooley</i>	
DEVELOPMENT OF NON-DESTRUCTIVE INSPECTION METHOD USING ULTRASONIC WAVE FOR DEGRADATED GFRP UNDER CHEMICAL ENVIRONMENT	2130
<i>Y. Tabuchi, Y. Fujii, K. Yamada, H. Nishimura</i>	
FAILURE AND DEFECT ANALYSES OF POLYMERS VIA MORPHOLOGICAL INVESTIGATION	2135
<i>E. Garcia-Meitin</i>	
HIGH-TEMPERATURE STEAM-TREATMENT OF PBI AND ITS BLENDS WITH PEEK AND PEKK: A SOLID-STATE NMR STUDY	2141
<i>J. Pope, T. Bremner, J. Blumel</i>	
IN-SITU CHARACTERIZATION OF THERMOPLASTIC POLYURETHANE REACTION KINETICS USING RHEO-FTIR	2148
<i>J. Gadley, J. Maia</i>	
MODELING OF OBSH DECOMPOSITION KINETICS AS BLOWING AGENT FOR CELLULAR EPDM RUBBER	2153
<i>N. Restrepo-Zapata, J. Ortiz, T. Osswald</i>	
PROPERTY DEVELOPMENT OF SEMI-CRYSTALLINE POLYMERS IN SINTERING PROCESSES	2159
<i>W. Aquite, J. Kettemann, A. Tapia, G. Yilmaz, T. Osswald</i>	
RESIDUAL STRESS ANALYSIS OF COMPRESSION-MOLDED POLY(ETHER ETHER KETONE) CYLINDRICAL PARTS	2163
<i>L. Jin, J. Sengupta, T. Bremner, H. Sue</i>	
RHEOLOGICAL ANALYSIS OF BRANCHED-POLYPROPYLENE PRODUCED THROUGH REACTIVE EXTRUSION	2166
<i>J. Carr, M. Farah, A. Azeredo</i>	
STUDYING THE EFFECT OF POWDER GEOMETRY ON THE SELECTIVE LASER SINTERING PROCESS	2171
<i>H. Mazhar, J. Bollmann, E. Forti, A. Praeger, T. Osswald, D. Negrut</i>	
ANTIMICROBIAL EFFECTS OF POLYMER BLENDED TRIAZOLE DERIVATIVES	2176
<i>J. Hannah, C. Cassaza, H. Siccardi, J. Hartnett, V. Flaris, I. Banerjee</i>	
CONTROLLED MIGRATION OF ANTIFOG FROM FLEXIBLE POLYETHYLENE FILMS	2179
<i>J. Rosen-Kligvasser, R. Suckeveriene, R. Tchudakov, M. Narkis</i>	
DEVELOPMENT OF POLYPROPYLENE MICROPOROUS HYDROPHILIC MEMBRANES BY BLENDING WITH ACRYLIC ACID GRAFTED POLYPROPYLENE	2183
<i>A. Saffar, A. Ajji, P. Carreau, M. Kamal</i>	
EFFECT OF GROUND CALCIUM CARBONATE PARTICLE SIZE DISTRIBUTION, MILLING METHOD AND IMPURITIES ON ABRASION PROPERTIES OF HIGHLY FILLED VINYL FORMULATIONS	2186
<i>L. Shaw, D. Yu</i>	
IMPORTANCE OF PROCESSING AND CONVERTING CONDITIONS ON THE USE OF CARBON NANOTUBES IN THERMOPLASTIC APPLICATIONS	2190
<i>M. Claes, M. Hurtgen, V. Lison</i>	

IMPROVEMENT OF THERMAL STABILITY OF PVC PLASTISOL DIP MOLDING PRODUCTS	2197
<i>S. Pivsa-Art, S. Thanabat, G. Phasuk, T. Bumrungsuk</i>	
NOVEL DEVELOPMENT FLAME RETARDANT ADDITIVE FOR ENVIRONMENTALLY FRIENDLY FLAME RETARDANT PVC COMPOUNDS	2201
<i>Z. Qian, J. Day, C. Collar</i>	
NOVEL PLASTICIZER ALTERNATIVE FOR POLYAMIDE POLYMERS	2209
<i>S. Senturk-Ozer, J. Day, V. Mehta</i>	
POLYPROPYLENE BLOCK COPOLYMERS FLAME RETARDED WITH THE BLENDS OF POLY(PENTABROMOBENZYL ACRYLATE) AND MAGNESIUM HYDROXIDE	2219
<i>L. Melamed, E. Eden, M. Leifer, P. Georlette, S. Levchik</i>	
RECENT ADVANCES IN GLASS BUBBLE POLYMER COMPOUNDS	2223
<i>B. Yalcin, S. Amos, M. William, S. Friedrich, F. Wolff, D. Park, T. Yamabe, J. Ruckebusch</i>	
SB₂O₃ FREE FR PBT PRODUCT DEVELOPMENT	2229
<i>Y. Yang, T. Ding</i>	
SOME PHYSICO-CHEMICAL STRUCTURAL FACTORS AFFECTING THE PERFORMANCE OF OXYGEN SCAVENGING ADDITIVES IN PET	2233
<i>K. Akkapeddi, J. Cavicchio, Y. Zhong</i>	
THERMAL CONDUCTIVITY IMPROVEMENTS FOR PLASTICS THROUGH THE USE OF ENGINEERED BORON NITRIDE	2238
<i>N/A</i>	
USING ZEMAC® COPOLYMERS TO UPGRADE VIRGIN NYLON PERFORMANCE	2239
<i>A. Adur, P. Taraneekar</i>	
ACOUSTIC PROCESS ANALYSIS OF RUBBER COMPOUNDING	2244
<i>C. Hopmann, J. Dering</i>	
AN ADAPTIVE FILLING TO PACKING SWITCHOVER METHOD FOR INJECTION MOLDING	2248
<i>G. Holzinger, R. Schiffers, S. Moser, S. Kruppa</i>	
BURN MARK PREDICTION IN INJECTION MOLDING	2254
<i>G. Mendible, A. Santiago, C. Barry, S. Johnston</i>	
DEVELOPMENT OF A CAPACITIVE TRANSDUCER FOR DIMENSIONS PREDICTION IN POLYMER EXTRUSION	2259
<i>Y. Cheng, K. Fung, F. Gao</i>	
ENERGY-SAVING BASED ALLOCATED GENERALIZED PREDICTIVE CONTROL (AGPC) IN EXTRUSION PROCESS	2265
<i>Z. Jiang, S. Mo, Y. Yang, F. Gao</i>	
FROM SINGLE BATCH PROCESS CONTROL TO MULTIPLE BATCH PROCESSES CONTROL: A REVIEW AND A PERSPECTIVE FOR INJECTION MOLDING	2271
<i>F. Gao, Z. Cao, J. Lu, Y. Yang</i>	
LEAN DESIGN OF EXPERIMENTS FOR PLASTICS PROCESSING: A LEAN STATISTICAL THINKING CASE STUDY	2277
<i>V. Huynh, S. Czupryna</i>	
NIR – SPECTROSCOPY: A SOPHISTICATED TOOL FOR PROCESS AND QUALITY CONTROL	2283
<i>A. Witschnigg, S. Laske, C. Holzer</i>	
ONLINE ESTIMATION OF LOCAL PERMEABILITY IN RESIN TRANSFER MOLDING	2289
<i>B. Wei, Y. Chang, Y. Yao, J. Fang</i>	
OPTIMIZATION OF POLYOLEFIN MANUFACTURING ASSETS IN CHANGING ECONOMIES	2294
<i>E. Ziskend, S. Marino</i>	
STEADY STATE AND RESPONSE TIME TEMPERATURE VALIDATION FOR A MULTIVARIATE INJECTION MOLDING SENSOR	2298
<i>G. Gordon, D. Kazmer, R. Gao, Z. Fan, X. Tang</i>	
TWO DIMENSIONAL PREDICTIVE FUNCTIONAL CONTROL FOR INJECTION MOLDING PROCESS	2305
<i>B. Yang, J. Shi, Y. Yang, F. Gao</i>	
A TWO-DIMENSIONAL ITERATIVE LEARNING MODEL PREDICTIVE CONTROL METHOD FOR INJECTION MOLDING BASED ON MIXED INTEGER QUADRATIC PROGRAMMING	2311
<i>J. Lu, Z. Cao, F. Gao</i>	
TWO-TIME DIMENSIONAL HYBRID DYNAMIC MATRIX CONTROL FOR INJECTION MOLDING PROCESS	2317
<i>S. Mo, Z. Jiang, Y. Yang, F. Gao</i>	

ATOM TRANSFER RADICAL POLYMERIZATION OF IONIC LIQUIDS WITH COMB-LIKE INITIATED BY STYRENE AND P-CHLOROMETHYLSTYRENE COPOLYMERS	2323
<i>J. Zheng, J. Yang, F. Chen, P. Fan, M. Zhong</i>	
EFFECT OF NANOCCLAY AND COMPATIBILIZER CONTENT ON OXYGEN PERMEABILITY OF LLDPE NANOCOMPOSITE MEMBRANES	2327
<i>P. Dolez, E. David, E. Blond</i>	
EFFECTS OF A MASS FINISHING PROCESS ON PARTS PRODUCED FROM ULTEM*9085 BY FUSED DEPOSITION MODELING	2331
<i>M. Fischer, V. Schoppner</i>	
GLASS FIBER REINFORCED POM WITH SUPERIOR MECHANICAL PROPERTIES—HOSTAFORM® XGC SERIES	2337
<i>K. Markgraf, L. Larson</i>	
HIGH STRAIN RATE TESTING OF POLYMERS FOR IMPACT SIMULATIONS	2344
<i>J. Bergstrom, D. Quinn, E. Schmitt, S. Brown, S. Chow</i>	
HIGH TEMPERATURE FLEXIBLE PPS PRODUCTS FOR HARSH ENVIRONMENTS.....	2347
<i>R. Luo, K. Miller, X. Tu, X. Zhao</i>	
AN INNOVATIVE FOOD PACKAGING DESIGN FOR CAN REPLACEMENT: A PRODUCT DEVELOPMENT STORY AT PRINTPACK	2354
<i>L. Zhang</i>	
MATERIAL SELECTION BASED ON FEEL: A METHODOLOGY FOR TECHNICAL EVALUATION	2359
<i>E. Larson</i>	
MECHANICAL CONSIDERATIONS OF TEXTILES APPLIED AS GEOTUBES FOR COAST EROSION CONTROL AND SHORELINE PROTECTION	2365
<i>C. Rios-Soberanis, E. Perez-Pacheco, J. Rodriguez-Laviada</i>	
MODIFICATION OF MELT STRENGTH OF POLYPROPYLENE VIA UV RADIATION	2370
<i>Y. Amintowlieh, C. Tzoganakis, S. Hatzikiriakos</i>	
NEW POLYCARBONATE-POLYSILOXANE COPOLYMER BLEND RESINS FOR CONSUMER ELECTRONIC APPLICATIONS	2375
<i>R. Grampel, M. Mee, R. Lucas</i>	
REACTIVE MODIFICATION OF HIGH DENSITY POLYETHYLENE IN A UV-INITIATED PROCESS.....	2379
<i>P. Sardashti, C. Tzoganakis, A. Penlidis</i>	
THERMAL AGEING OF POLYAMIDE 12 USED FOR POLYMER LASER SINTERING – INFLUENCE ON PART QUALITY CHARACTERISTICS	2383
<i>S. Josupeit, S. Rusenberg, N. Rupp, M. Gessler, H. Schmid</i>	
THICKNESS MEASUREMENT METHODS AIDING LIGHTWEIGHTING OF PET BOTTLES.....	2389
<i>M. Allahkarami, R. Ahmed, S. Bandla, J. Hanan</i>	
COMPARING MONOLAYER VERSUS BILAYER ROTATIONAL MOLDED POLYETHYLENE STORAGE TANKS FOR LONG-TERM BIODIESEL STORAGE.....	2394
<i>M. Thompson, B. Mu, C. Ewaschuk, Y. Cai, J. Vlachopoulos</i>	
CRITICAL FACTORS AFFECTING THE USE OF FINITE ELEMENT ANALYSIS FOR ROTOMOLDED PARTS.....	2400
<i>H. Bhabha, C. Liauw, H. Taylor, J. Condliffe, N. Henwood</i>	
EFFECT OF SURFACE TREATMENT ON THE PROPERTIES OF WOOD-PLASTICS COMPOSITES PRODUCED BY ROTOMOLDING	2406
<i>A. Raymond, D. Rodrigue</i>	
LIMITATIONS & LEVEL OF ACCURACY OF TESTS FOR ROTOMOLDING POWDERS	2411
<i>N. Henwood</i>	
PREDICTING THE FLOW BEHAVIOR OF POWDERS, WITH PARTICULAR REFERENCE TO ROTOMOLDING MATERIALS.....	2419
<i>N. Henwood</i>	
FACTORS AFFECTING THERMOFORMED TRAYS DURING RETORT	2425
<i>R. Elleithy</i>	
HIGH MELT STRENGTH POLYOLFINs FOR MELT PHASE THERMOFORMING AND EXTRUSION BLOW MOLDING VIA ELECTRON BEAM MODIFICATION	2430
<i>E. Phillips, W. Crilley</i>	
THERMOFORMING OF THERMOSETTING RESINS	2438
<i>M. Tabrizi, K. Tabrizi</i>	
THERMOFORMING RADIATION CROSSLINKED POLYAMIDE – EFFECTS OF DEGREE OF CROSS LINKING AND THERMOFORMING PROCESSING CONDITIONS	2439
<i>A. Seefried, D. Drummer</i>	

WHY YOU SHOULD CONSIDER A CONTOUR PRINTED PACKAGE	2447
<i>T. Shepherd</i>	
ANALYSIS OF THE CURE COMPATIBILIZATION EFFICIENCY OF PEROXIDE/SULPHUR SYSTEM ON DEVULCANIZED EPDM AND POLYPROPYLENE BLENDS WITH REFERENCE TO DEVULCANIZED TIRE RUBBER AND POLYPROPYLENE BLENDS	2449
<i>P. Mutyala, M. Meysami, S. Zhu, C. Tzoganakis</i>	
HIGH PERFORMANCE, WEAR RESISTANT THERMOPLASTIC CO-POLYESTER ELASTOMERS (COPE).....	2458
<i>M. Kaushik</i>	
NEW LOW DENSITY AND LOW HARDNESS THERMOPLASTIC CO-POLYESTER ELASTOMERS (COPE).....	2463
<i>M. Kaushik</i>	
PERFORMANCE ATTRIBUTES OF THERMOPLASTIC POLYURETHANE GOLF BALL COVERS	2468
<i>S. Parnell, N. Patel</i>	
SURFACE ENERGY OF A POLYURETHANE AS A FUNCTION OF FILM THICKNESS	2472
<i>M. Zhai, G. McKenna</i>	
THERMAL, MECHANICAL, RHEOLOGICAL AND DIELECTRIC PROPERTIES OF CLAY-CONTAINING SEBS NANOCOMPOSITES: EFFECT OF MORPHOLOGY	2476
<i>E. Helal, N. Demarquette, E. David, D. Carastan, L. Amurin, M. Frechette</i>	
TUNING THE COMPATIBILITY OF POLYOLEFINS WITH POLYPROPYLENE-BASED OLEFIN BLOCK COPOLYMERS – STIFF, TOUGH, AND CLEAR	2481
<i>C. Shan, G. Marchand, K. Walton, E. Carnahan, R. Laakso, E. Garcia-Meitin</i>	
ACOUSTIC BEHAVIOR OF OPEN-CELL FOAMS BACKED WITH AN AIR-GAP	2487
<i>D. Jahani, R. Chu, A. Ameli, M. Saniei, C. Park, H. Naguib</i>	
CROSSLINKED POLYUREA AEROGELS.....	2492
<i>A. Shinko, S. Jana, M. Meador</i>	
CRYSTALLIZATION AND FOAMING BEHAVIORS OF POLY(LACTIC ACID) USING SUPERCRITICAL CARBON DIOXIDE AS A FOAMING AGENT	2498
<i>L. Xu, H. Huang</i>	
CYCLIC OLEFINE COPOLYMER (COC) NANOCOMPOSITES AND NANOCOMPOSITE FOAMS: PREPARATION, MORPHOLOGY AND PROPERTIES.....	2503
<i>Y. Li, H. Wang, M. Jahan, C. Zeng</i>	
DETECTION OF THE BRILL TRANSITION TO ELUCIDATE LOCALIZED THERMAL HISTORY IN NYLON 6/6 INJECTION MOLDED SAMPLES	2508
<i>A. Rhoades, J. Williams, J. Beaumont</i>	
DEVELOPMENT OF EXPANDED PLA BEAD FOAMS: A PROMISING SUBSTITUTE OF EXPANDED PS AND PP PRODUCTS	2514
<i>M. Nofar, C. Park</i>	
THE EFFECT OF IMMISCIBILITY ON BIOBASED PLA/PHBV FOAMS	2519
<i>Q. Guan, R. Rizvi, H. Naguib</i>	
FEASIBILITY OF DOUBLE MELTING PEAK GENERATION FOR EXPANDED THERMOPLASTIC POLYURETHANE BEAD FOAMS	2526
<i>N. Hossieny, A. Ameli, M. Saniei, D. Jahani, C. Park</i>	
IMPROVING FOAMING PROPERTIES OF LOW MELT-STRENGTH POLYETHYLENE VIA CONTROLLED CROSSLINKING	2531
<i>X. Chen, W. Liang, S. Lai</i>	
IMPROVING THERMOPLASTIC FOAM STABILITY IN THE MOLTEN STATE BY INTERFACIALLY-ADSORBED PARTICLES	2535
<i>J. Lobos, S. Iasella, S. Velankar, M. Rodriguez-Perez</i>	
INFLUENCE OF THE FLOW CHANNEL GEOMETRY ON THE DEGASSING PRESSURE IN FOAM EXTRUSION	2540
<i>B. Geissler, J. Macher, S. Schuschnigg, S. Laske, C. Holzer, G. Langecker</i>	
INJECTION MOLDING OF HIGHLY-POROUS POLYPROPYLENE FOAMS	2544
<i>R. Chu, L. Mark, D. Jahani, C. Park</i>	
LIGHTWEIGHT POLYPROPYLENE-CARBON NANOTUBE FOAMS WITH LOW FILLER CONTENT, HIGH PERMITTIVITY AND LOW DIELECTRIC LOSS FOR CHARGE STORAGE APPLICATIONS.....	2549
<i>A. Ameli, D. Jahani, M. Nofar, C. Park, P. Potschke, G. Rizvi</i>	
MICROCELLULAR FOAMING BEHAVIOR OF POLY(BUTYLENE SUCCINATE)/NANOSIZED CALCIUM CARBONATE COMPOSITES	2554
<i>T. Kuang, P. Yu, B. Chen, X. Peng</i>	

MICROMECHANICAL MODELING OF THERMALLY CONDUCTIVE POLYMER MATRIX COMPOSITE FOAMS	2559
<i>H. Ding, Y. Wang, S. Leung</i>	
ONE-STEP NANOCELLULAR FOAMING OF CLARIFIED POLYPROPYLENE USING SUPERCRITICAL CO₂	2565
<i>S. Ameli, N. Hossieny, D. Jahani, C. Park</i>	
POLYPROPYLENE CRYSTALLIZATION IN BULK DURING AN EXTRUSION PROCESS: EFFECT OF MOLECULAR WEIGHT AND SUPERCRITICAL CARBON DIOXIDE	2569
<i>A. Tabatabaei, C. Park</i>	
POLYVINYL ALCOHOL FOAMING WITH CO₂ AND WATER AS CO-BLOWING AGENTS	2574
<i>N. Zhao, L. Mark, C. Zhu, C. Park, Q. Li, R. Glenn, R. Thompson</i>	
PROPERTIES AND FOAMING BEHAVIOR OF BIODEGRADABLE POLY(LACTIC ACID)/POLY(BUTYLENE SUCCINATE) BLEND	2579
<i>P. Yu, T. Kuang, B. Chen, X. Peng</i>	
THE ROLE OF RHEOLOGY IN NON-PRESSURIZED POLYMER FOAMING SYSTEMS	2584
<i>M. Emami, J. Vlachopoulos, M. Thompson</i>	
STRUCTURE – PROPERTY RELATIONSHIPS IN LIGHTLY CROSSLINKED POLYOLEFIN FOAMS	2590
<i>M. Barger</i>	
BIOEPOXY / GLASS FIBER COMPOSITES	2596
<i>J. Moller, F. Maschinenbau, C. Kuncho, D. Schmidt, E. Reynaud</i>	
DETERMINATION OF KINETIC CURE PARAMETERS CONSIDERING SPECIFIC HEAT TEMPERATURE DEPENDENCE	2600
<i>R. Pagano, V. Calado, F. Tavares, E. Biscaila</i>	
THE EFFECTS OF MATRIX TYPE AND PROPERTIES UPON THE TENSILE PROPERTIES AND NOTCH SENSITIVITY OF RECYCLED JUTE MAT REINFORCED POLYMERIC MATRIX COMPOSITES	2605
<i>M. Aly-Hassan, R. Nishida, W. Thodsaratpreeyakul, H. Hamada</i>	
EXPERIMENTAL AND NUMERICAL ANALYSIS OF MATERIAL PROPERTIES OF UNIDIRECTIONAL COMPOSITES MANUFACTURED BY TAILORED FIBER PLACEMENT	2610
<i>A. Leippbrand, L. Bittrich, A. Spickenheuer, G. Heinrich</i>	
IMPROVED PROCESSABILITY AND PRODUCTIVITY OF THERMOSET COMPOUNDS USING SP SCORCH PROTECTED PEROXIDES	2615
<i>P. Dluznieski, L. Palys</i>	
THE NEWLY DEVELOPED FLUORINE TYPE EPOXY RESIN HAVING EXCELLENT ADHESION AND LOW DK/DF CHARACTERISTICS	2619
<i>J. Beak</i>	
THE OPEN HOLE COMPRESSION TEST FOR EVALUATION OF THE EFFECTS OF FIBER WAVINESS IN FIBER REINFORCED COMPOSITES	2620
<i>S. Shams, R. Elhajjar</i>	
PPE MACROMONOMERS - USE IN ANHYDRIDE CURED EPOXY	2626
<i>E. Peters, E. Tarkin-Tas</i>	
REVIEW OF ANALYTICAL MODELS OF ANISOTROPY-INDUCE SPRING FORWARD EFFECT VIA FEA SIMULATION AND AN EXPERIMENTAL STUDY	2630
<i>J. Puentes, B. Laqua, L. Iervolino, K. Dahl, M. Knott, T. Osswald</i>	
TACK PROPERTY AND CURE BEHAVIOR OF HIGH PERFORMANCE CARBON/EPOXY PREPREG	2638
<i>S. Lee, T. Hong, J. Lee, H. Shin, S. Lim</i>	
COMPARISON OF HIGH-SOLVATING AND GENERAL PURPOSE PLASTICIZERS USING PVC DRY BLENDING DYNAMICS	2642
<i>I. Query, E. McBride, W. Arendt</i>	
SELECTIVITY AND REACTIVITY IN THE CHLORINATION OF PVC MODEL COMPOUNDS IN RADICAL-COMPLEXING SOLVENTS	2650
<i>X. Ge, W. Starnes Jr.</i>	
TEST METHOD DEVELOPMENT FOR OUTDOOR EXPOSURE AND ACCELERATED WEATHERING OF VINYL SIDING SPECIMENS	2655
<i>J. Quill, S. Fowler</i>	
REDUCING STRESS CONCENTRATIONS IN A SIDE NOTCHED FINITE-WIDTH COMPOSITE PLATE	2671
<i>A. Alshaya, R. Rowlands</i>	

THE EFFECT OF RHEOLOGICAL BEHAVIOR ON THE MORPHOLOGY AND MECHANICAL PROPERTIES OF MULTI-LAYERED POLYPROPYLENE FILM/FOAMS	2679
<i>S. Lee, J. Du, E. Baer, J. Maia</i>	
EVALUATION OF MECHANICAL PROPERTIES ON PAPERBOARD REINFORCED THERMOSETTING COMPOSITES	2684
<i>T. Kitamura, K. Ito, S. Teramura, Z. Zhang, H. Hamada</i>	
PREDICTION OF CRYSTALLINITY IN INJECTION MOLDING DURING PACKING STAGE BASED ON PVT PROPERTY	2689
<i>X. Wang, P. Zhao, W. Yang, J. Fu</i>	
DETERMINING OPTIMIZED BLENDS OF REGROUND MULTILAYER FILM FOR ALTERNATIVE USES	2694
<i>E. Bowser, G. King</i>	
EXAMINING ANISOTROPIC PROPERTIES OF LIQUID SILICONE RUBBER	2703
<i>B. Guzewicz</i>	
EVALUATING SHEAR RATE LIMITS OF PLASTIC MATERIALS DEPENDENT ON MAGNITUDE AND DURATION OF SHEARING	2717
<i>A. Angros, M. Mincin</i>	
EXPLOITING TRANSCRYSTALLINE GROWTH IN POLYMER FIBRILLAR BLENDS FOR PREPARING OPEN-CELL FOAMS IN EXTRUSION	2724
<i>A. Rizvi, C. Park</i>	
STRUCTURAL TUNABILITY OF POLYMER FIBRILLAR BLENDS USING SUPERCRITICAL CARBON DIOXIDE: CROSSOVER FROM CLOSE-CELL TO OPEN-CELL TO BICONTINUOUS MACROPOROUS MONOLITHS	2728
<i>A. Rizvi, C. Park, M. Yamaguchi</i>	
PROCESSING AND CHARACTERIZATION OF PLA-BAMBOO COMPOSITES WITH ACRYLIC ACID COUPLING AGENT AND MALEIC ACID COMPATIBILIZER.....	2731
<i>J. Boucher, B. Okray, S. Shivkumar</i>	
Author Index	