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ICMARI

BOOK OF ABSTRACTS

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1. Specialized center of Rubber and Polymer Materials in agriculture and industry (RPM), Faculty of Science, Kasetsart University.
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Sessions

1. Rubbers and Composites
2. Biomaterials
3. Materials of Energy and Environmental Applications
4. Computational Model and Simulations
5. Industrial Innovations

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O-33: Business Process Analysis and Improvement for a Third Party Logistics Provider in Indonesian Cold Chain Logistics <i>Sintia Putri pradita</i>	63
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Poster presentation

P-01: A Density Functional Theory Insight Towards the CO ₂ Absorption on Guanidinium Based Ionic Liquids <i>Sirichai Sooksathit</i>	64
P-02: Characterization of Fluid Properties of Solvents and Oils Used in in situ Forming Microparticles <i>Sai Myo Thu Rein</i>	65
P-03: Emerging Role of Polyethylene Glycol on Doxycycline Hyclate-Incorporated Eudragit RS in <i>situ</i> Forming Gel for Periodontitis Treatment <i>Wai Wai Lwin</i>	66
P-04: FEM-Based Assessment of Wear of Stamping Die <i>Tomas Trzepiecinski</i>	67
P-05: Mechanical Properties Improvement of Polyamide 11 and Silane Modified Hollow Glass Microspheres Composites <i>Thanisa Seaphu</i>	68
P-06: Designing Fatty Acid Solvent Exchange-Induced in <i>situ</i> Forming Gel Comprising Vancomycin HCl for Periodontal Pocket Targeted Delivery <i>Takron Chantadee</i>	69
P-07: Self-assembly of Aldehyde Lipids in Water <i>Minchakarn Janlad</i>	70
P-08: Doxycycline Hyclate-in <i>situ</i> Forming Microparticles Using beta-Cyclodextrin as Matrix Former for Periodontitis Treatment <i>Nutdanai Lertsuphovanit</i>	71
P-09: Development of Double Layer-Wound Dressing of Biopolymer Containing Rice Extract and Essential Oil for Biomedical Applications <i>Piyachat Chuysinuan</i>	72
P-10: Bond Strength of Laminated Films between Poly(lactic acid) Based Cast Films and Metalized Cast Polypropylene Films <i>Nattakarn Hongsriphan</i>	73
P-11: Effect of Tackifier Resin and Non-Rubber Components on Adhesive Property of Natural Latex <i>Thridsawan Prasopdee</i>	74

P-12: Adhesion Hysteresis and Heat Build-up of Rubber for Energy-saved Tyre <i>Sukontip Suethao</i>	75
P-13: Study of the Effect of Electron Beam on Thermal and Mechanical Properties of Poly(lactic acid)/Poly(butylene Succinate) Blends <i>Sunan Tiptipakorn</i>	76
P-14: Comparative Neutron-Shielding Properties of Metal Oxide/HDPE Composites Using a Monte Carlo Code of PHITS <i>Donruedee Toyen</i>	77
P-15: Development of a New Transparent and Reusable Gel Dosimeter Based on KI/PVA Composites <i>Pinyapach Tiamduangtawan</i>	78
P-16: Effects of Bromide-mixing in Methylammonium Lead Iodide on Photovoltaic Properties of ZnO-based Perovskite Solar Cells <i>Chawit Khaywimut</i>	79
P-17: Application of Itaconic Acid as Anti-Crease Finishing for Cotton Fabric <i>Rungsima Chollakup</i>	80
P-18: Development of Quantitative pKa Prediction Method Based on Electronic Structure Theory of Molecules in Solution Coupled with the Linear Fitting Correction Scheme <i>Ryo Fujiki</i>	81
P-19: Relativistic Two-Component Theory by Quasi-Degenerate Perturbation Theory and its Numerical Assessment <i>Kodai Kanemaru</i>	82
P-20: Manufacturing Process and Properties of Lead-Free Sponge Natural Rubber for Use in X-ray and Gamma Ray Shielding Applications <i>Phakamat Lim-aroon</i>	83
P-21: Three-Dimensional Reference Interaction Site Model Self-Consistent Field Study on the Coordination Structure and Excitation Spectra of Cu(II)-Water Complexes in Aqueous Solution <i>Chen Yang</i>	84
P-22: Effects of Sn Incorporation in ZnO Thin Films on Properties of Perovskite Solar Cells <i>Pakawat Malison</i>	85
P-23: Molecular Mechanisms of Lignin Solvation within Water and Ionic Liquid Solvent <i>Nuttawat Sawang</i>	86

P-24: Extraction of Nanocellulose from Pineapple Leaves by Acid-Hydrolysis and Steam Explosion for Reinforcement in Natural Rubber Composites <i>Watcharapat Chawalitsakunchai</i>	87
P-25: Reduction of Endotoxin from Human Root Canals by Calcium Hydroxide Nanoparticles <i>Pitchanun Lungkapinth</i>	88
P-26: Synthesis of Sodium Lignosulfonate from Lignin Extracted from Oil Palm Empty Fruit Bunches by Acid/Alkaline Treatment for Reinforcement in Natural Rubber Composites <i>Numporn Thungphotrakul</i>	89
P-27: Facile Preparation of a Magnetic Carbon Adsorbent via Simultaneous Magnetization and Activation of Sugarcane Bagasse and Fe ²⁺ and Fe ³⁺ ions <i>Sirinad Mahawong</i>	90
P-28: Facile Preparation of Magnetic Activated Carbon Beads Using a Green Binder and Wasted Magnetic Iron Scrap as a Magnetic Source <i>Ladawan Suksai</i>	91
P-29: Effect of Hydroxyapatite on the Physicochemical Properties of STR 5L Natural Rubber Compounds <i>Hasan Daupor</i>	92
P-30: Theoretical Study on Anion Effects on Oligomer Formation of Cytochrome C <i>Hideyoshi Motoki</i>	93
P-31: Biodegradation of Levan Polymer/Poly (Lactic Acid) (PLA) Blend <i>Pongsakorn Phengnoi</i>	94
P-32: Efficacy of Cold Atmospheric Pressure Plasma Jet Against <i>Enterococcus Faecalis</i> in Apical Canal of Human Single-Rooted Teeth: A Preliminary Study <i>Kanruethai Saleewong</i>	95
P-33: Effect of Zinc Doped LaCoO ₃ on Perovskite Structure <i>Voranuch Somsongkul</i>	96
P-34: A Rapid and Efficient Antimicrobial Coating Approach for Textile Application <i>Ekavianty Prajatelista</i>	97
P-35: The Performance of Permanent Magnet Core of Reducing Sag Voltage in Personal Computer (PC) <i>Herawati Ys</i>	98
P-36: Improved 1,3-Propanediol with Cassava Pulp as Cosubstrate for Polytrimethylene Terephthalate (PTT) Production <i>Waraporn Apiwatanapiwat</i>	99

Effect of hydroxyapatite on the physicochemical properties of STR 5L natural rubber compounds

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This research aims to develop natural rubber based heel care pad with using hydroxyapatite (HAP) as an active agent. The IR absorption peaks of 562 and 1018 cm^{-1} duo to the present $\nu - [\text{PO}_4]$ group of hydroxyapatite grafted onto natural rubber molecules have been found [1]. Influence of HAP loading (30, 70, 100 and 150 phr) on physical properties of the vulcanized sheets have been investigated. It is found that the tensile strength decrease with increasing HAP contents. This is attributed to a molecular filler network of HAP possibly forming from hydroxyl groups of HAP deteriorate the strength of the vulcanized sheets [2]. Additionally, increases amount of HAP lead to an increase of the scorch time which is due to the double bond and alpha-methyl group are active on the sulfur retention reaction. Further study is apply silica and calcium carbonate to the initial compounding formulation in order to improve the the vulcanizates properties. Hence, the soft and moderate harness with applicable strength vulcanizate sheet is successfully prepared which is suitable for further heel care pad assembly.

References

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