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Novel Electroactive-paper Gel Preparations via 1-butyl-3-methylimidazolium chloride (BMIMCl) Solvent WISSAWIN KUNCHORN-SUP, ANUVAT SIRIVAT, The Petroleum and Petrochemical College — Papers used in the field of electro-responsive applications are known as Electroactive-papers (EAPaps), consisting primarily of a cellulose. 1-butyl-3-methylimidazolium chloride (BMIMCl) is an interesting ionic liquid that acts as an effective cellulose solvent for EAPap due to its high solubility without chain derivatization, less chain degradation, and stability in electro-responsive applications. In our work, physical and chemical cellulose gels were fabricated and studied for the effects of varying crosslinking ratio (CR) and aging time (tag), with glutaraldehyde (GA) acting as the crosslinking agent. The crosslinking reaction conversion could be increased by increasing the CR and tag; the reaction products are ketone linkages and by-product water molecules. A difference in optical properties could be observed and related to the differing amounts of ketone linkages, as confirmed by FTIR-ATR, and the degradation temperature (Td). Our paper-gels showed potential characteristics towards electro-responsive applications: less preparation time (< 14 hours) and stable gel properties.

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