

IMPROVEMENT OF CELLULOSE PROCESSING IN HIGH MELTING POINT IONIC LIQUIDS BY USING CARBON DIOXIDE

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The capacity of the ionic liquids (ILs) of dissolving high concentrations of cellulose and at relatively low temperatures makes them promising solvents for the so called biorefinery process: obtaining of materials, biofuels etc. Nevertheless they present important disadvantages such as extremely high viscosity (especially when the biopolymer is dissolved into it) and high melting points (such as those of the imidazolium chloride family). It is known that when the ILs dissolve small amounts of molecular solvents their viscosity is drastically decreased. Carbon dioxide presents as a promising co-solvent for the ionic liquid processing of lignocellulose. In this work, the influence of CO₂ in cellulose processing using ionic liquids is explored through determining the melting points and other CO₂ + ionic liquids properties and determining its influence in cellulose dissolution in ionic liquids as well as influencing acetylation of cellulose. In figure 1 melting point reduction as a function of CO₂ pressure is plotted.

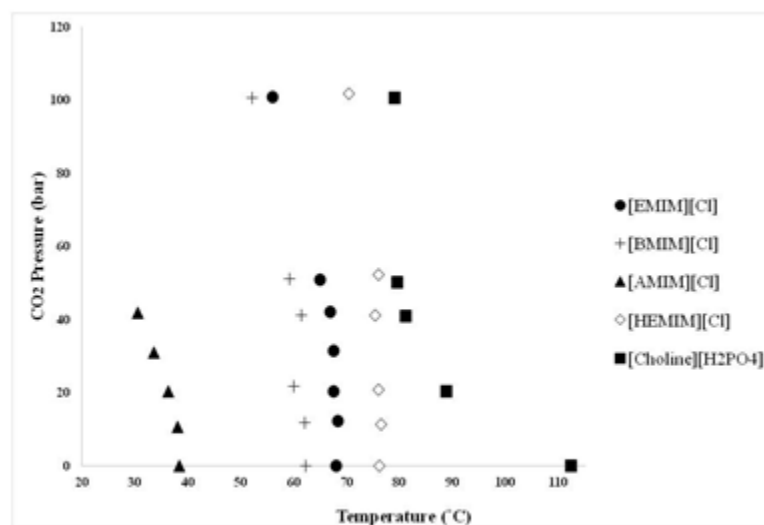


Figure 1. Graphical representation of experimental measurements of the ionic salts melting points at different pressures of CO₂

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