

INFLUENCE OF WATER ADDITION ON THE RHEOLOGICAL BEHAVIOR AND SYNERESIS OF EUTECTOGELES

Salvador Enrique Farías Anzo¹, Emma Rebeca Macías Balleza¹, Erika Roxana Larios Durán², Silvia Teresa Huerta Marcial³, Josue Mota-Morales⁴

¹Universidad de Guadalajara, Reología, Mexico. ²Universidad de Guadalajara, Electroquímica, Mexico. ³Universidad de Guadalajara, Mecánica Eléctrica, Mexico. ⁴Centro de física aplicada y tecnología avanzada (CFATA), Nanotecnología, Mexico.

An aspect that has gained considerable relevance in the current context is the need to implement smart and sustainable materials. Within this framework, eutectogels represent a novel class of materials with great potential for applications across diverse fields, including biomedicine (e.g., biosensors), owing to their tunable properties primarily imparted by deep eutectic solvents (DESs). Moreover, their negligible volatility makes them suitable candidates to replace conventional hydrogels. Recent studies have highlighted particular interest in the incorporation of water into eutectogels as a strategy to mitigate syneresis. Accordingly, in this work, the rheological behavior of eutectogels composed of the DES ethylene glycol:choline chloride in a 2:1 molar ratio and type A gelatin as the gelling agent was investigated. Strain, frequency, and temperature sweeps, as well as compression tests, were carried out to evaluate the influence of water on the mechanical and rheological properties of the gels. The results showed that water incorporation decreases syneresis in eutectogels and, although it reduces the viscosity of the precursor solution, the final gels exhibit no significant changes in their rheological and mechanical properties. Thus, water addition enhances gel stability without compromising their mechanical performance

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Presenting author's email: salvador.farias7849@alumnos.udg.mx