

15th International Conference on

PHARMACEUTICAL FORMULATIONS & DRUG DELIVERY

September 17-18, 2018 | Philadelphia, USA

Hydrophilic ionic liquids as ingredients in gel-based dermal formulations

Christopher Kiselmann, Thomas Schmidts and Frank Runkel
University of Applied Sciences, Germany

Ionic liquids (ILs) are salts having a melting point below 100°C. As designer solvents, ILs can be synthesized for particular applications or with specific chemical and physical properties simply by changing the anion/cation combination. ILs can be successfully used as ingredients in dermal drug delivery systems. In these systems, ILs have been used as oil substitutes, water substitutes, additives or surfactants. However, due to their ionic character, potential incompatibilities of ILs with formulation ingredients must be evaluated. The conductivity and surface activity of several hydrophilic ionic liquids in a water solution was determined. Based on the data, SEPINEO™ P 600 (Acrylamide/Sodium Acryloyldimethyl Taurate Copolymer/Isohexadecane & Polysorbate 80) gels, as well as cellulose derivatives (hydroxyethyl cellulose, HEC) gels, were produced. All ILs evaluated disturbed the gel structure of SEPINEO™ P 600 gels, resulting in a decreased viscosity. The interaction between cationic ILs and anionic components in SEPINEO™ P 600 led to gel shrinkage and fall in viscosity. However, long-term stability of the formulations was mostly not affected. All emulsion parameters remained unchanged during storage. In contrast, the viscosity of the HEC gels was not affected by the addition of the ILs. The used ILs can act in the emulsion as antimicrobial agents, penetration enhancers and solvents.

Biography

Christopher Kiselmann is PhD student at the Technische Hochschule Mittelhessen - University of Applied Sciences, Institute of Bioprocess Engineering and Pharmaceutical Technology, Gießen, Germany

christopher.kiselmann@lse.thm.de

Notes: