

Solventes eutéticos para preparação de materiais metálicos por eletrodeposição

Eutectic solvents for preparation of metallic materials by electrodeposition

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Abstract: Electrodeposition is a powerful tool to prepare metal and alloys coatings for several application, such as for corrosion protection of a metal, as electrocatalysis material for a specific reaction, as electrode in a solar cell, as electrochemical sensor for determination of organic and inorganic species in water and food. Traditionally, the electrodeposited coatings are prepared from aqueous plating solutions. However, the baths formulated in aqueous medium require the addition of complexing (e.g. cyanides) additives to stabilize the metal cations in solution and to inhibit the hydrogen gas, which, sometimes, is produced on the cathode simultaneously to the metal electrodeposition. Consequently, the addition of these complexing additives leads to the production of industrial wastewater that are not environmental safety. Currently, due to the concerns related to the environmental, it is increasing the interest to produce electrodeposited coatings from Deep Eutectic Solvents (DESs), which consist of a mixture of a quaternary ammonium halide salt, a hydrogen-bond acceptor, with a hydrogen-bond donor molecule. DESs are nontoxic, biodegradable and consider environmentally friendlier, and cheap. In this work, a short overview about the electrodeposition of metals and alloys from DESs will be presented, showing their advantages and disadvantages. Furthermore, some examples from laboratory investigations and technological applications will be presented.

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