

Electrocatalysis in Fuel cells: A Non-and Low-Platinum Approach
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Palladium-Based Nanocatalysts for Alcohol Electrooxidation in Alkaline Media

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Abstract

Direct alcohol alkaline fuel cells (DAAFCs) are potential power sources for a variety of portable applications as they provide unique advantages over hydrogen-based fuel cell devices. Alcohols (such as methanol, ethanol, ethylene glycol, and glycerol) have high volumetric energy density and are easier to store and transport than hydrogen. Palladium-based nanocatalysts have continued to receive much research attention because of their cost advantages, relative abundance, and unique properties in the electrocatalytic oxidation of alcohols in alkaline media compared to platinum catalysts. Recent efforts have focused on the discovery of palladium-based electrocatalysts with little or no platinum for oxygen reduction reaction (ORR). This chapter is an overview of the recent developments in the employment of palladium-based nanocatalysts, containing little or no platinum, for the electrooxidation of alcohols in alkaline media.