

Innovative Membrane Development for Fuel Cells

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The innovative membranes for alternative energy devices will be presented. An electrical car is long waited solution to environmental and fuel supply problems in transport. Most probably, the shift from a combustion engine to an electrical car will take time, and the first alternative commercial car will be hybrid. The critical issue is the power source for an electrical engine. The fuel cell (FC)-battery hybrid is a promising solution to replace the combustion engine. Liquid fuel (e.g. methanol) are suitable for applications with the existing infrastructure, and for this reason they attract commercial interest. The development in this area is closely related to the material science and larger number of new lower price materials with better characteristics for complex system is needed. Fuel cells as the typical electrochemical power sources show higher efficiency as compared to combustion engine at temperatures below 200 °C. However, the efficiency is limited by ohmic losses, which arise from necessity to use the ionic conducting element (membrane). In order to increase the efficiency of increase the efficiency of research, the laboratory preparations combined with industrial experience were introduced. As result, the more efficient equipment and procedure for fast high quality membrane preparation in laboratory have been developed. It already allowed developing new innovative materials.