CHAPTER 15

POLYMER ELECTROLYTE MAKING FROM EUGENOL AND DIRECT METHANOL FUEL CELLS

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1. Intoduction

The continuous use of hydrocarbon fuels results in fossil fuel supply as natural resources that cannot be renewed. Another problem that is also caused is the occurrence of environmental pollution and global warming. Therefore, it is necessary to look for alternative energy that is sustainable and economical with low emissions. One alternative energy that has received attention to be developed is the fuel cell. A fuel cell is an electrochemical device that directly converts chemical energy from a redox reaction into electrical energy [1].

The fuel cell based on the combination of the type of fuel and the type of electrolyte used is divided into 6, among others: alkaline fuel cell (AFC), molten carbonate fuel cell (MCFC), phosphoric acid fuel cell (PAFC), proton exchange membrane fuel cell (PEMFC)), solid oxide fuel cell (SOFC), and direct methanol fuel cell (DMFC) [2]. Among several fuel cells, direct methanol fuel cell (DMFC) produces high energy, has a simple design, easy to handle, lightweight, low pollution, and easy to move. Therefore, many DMFCs have been developed as a safe source of clean energy to be applied [3].