

**PREPARATION AND CHARACTERIZATION OF PMMA/PVA BLEND
AS ELECTROLYTE IN LITHIUM ION BATTERY**

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ABSTRACT

PREPARATION AND CHARACTERIZATION OF PMMA/PVA BLEND AS ELECTROLYTE IN LITHIUM ION BATTERY

The PMMA/PVA blends were prepared by solvent casting technique. However, there was no free standing film can be obtained from these blends except when 0.2 g PVA was added into the system. From the optical micrograph, it was observed that the blends became damper as the concentration of PVA increased due to the hygroscopic nature of PVA. The FTIR analysis revealed the formation of hydrogen bonding between the carbonyl group of PMMA and the hydroxyl group of PVA. It was also noted from TGA analysis, that all the blends were less stable than in their individual form. DSC analysis confirmed that these PMMA/PVA blends were homogenous.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

To date, scientists are still trying to improve the development of lithium battery due to higher demand for portable telecommunication devices. The purpose of this type of battery is to provide energy for portable telecommunication such as cell phone. Due to this demand, lithium battery should be small enough and consequently its weight and size could be reduced.

The current liquid based electrolyte associate with the problem like highly flammable, leakage of harmful liquids and it will also explode when expose to excess current or voltage. All these lead to safety concerned.

The scientists are still trying to find an alternative for liquid electrolyte due to the problems that occurred in liquid electrolyte. They found that the alternative choice to face these problems is replace the liquid electrolyte by polymer electrolyte. Three types of polymer electrolyte that have been developing are dry