

**PREPARATION AND CHARACTERIZATION OF POLY(METHYL
METACRYLATE) / CURED DEPROTEINIZED NATURAL RUBBER (DPNR)
BASE POLYMER ELECTROLYTE BY SOLVENT CASTING METHOD**

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ABSTRACT

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Freestanding films of PMMA/cured DPNR can be obtained for both doped and undoped system at all DPNR and salt compositions. The highest conductivity obtained was $5.69 \times 10^{-9} \text{ Scm}^{-1}$ at room temperature in PMMA/ 10% cured DPNR/ LiCF_3SO_3 system. The formation of DPNR coagulate limit the migration of ion in the blend system at higher concentration of DPNR.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

World-wide research and development effort has been devoted to commercialize high performance lithium secondary battery using solid polymer electrolytes because of their attractive potential applications to electric vehicles as well as portable electronic devices. However, solid based polymer electrolytes still suffer from poor ionic conductivity especially at room temperature. Therefore, many researchers have been focusing on a new development of solid base electrolyte system that exhibits several advantages over the liquid base electrolyte such as:

- a) It is much more stable than liquid base electrolyte.
- b) Long shelf life.
- c) Wide operating temperature range.
- d) High energy density and voltage density.
- e) No gassing, corrosion and leakage. Not harmful towards environment.
- f) Easy to prepare in thin film and safer to use.
- g) Exhibit higher ionic conductivity compare to the liquid base electrolyte.

However, solid polymer electrolyte has poor electrode electrolyte contact especially when it is fabricated into thin film form and need to be improved.