

A STUDY OF SURFACE MORPHOLOGY AND
PHYSICAL PROPERTIES OF POLY(VINYL
ALCOHOL AND METHYL CELLULOSE
(PVA/MEC) THIN FILM

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**A STUDY OF SURFACE MORPHOLOGY AND PHYSICAL PROPERTIES OF
POLYVINYL ALCOHOL AND METHYL CELLULOSE
(PVA/MC) THIN-FILM.**

By
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A project paper submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of Applied Science (Electronics and Instrumentations Physics)

**DEPARTMENT OF PHYSICAL SCIENCES
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UNIVERSITI MALAYSIA TERENGGANU
2009**



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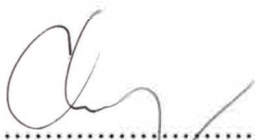
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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: A STUDY OF SURFACE MORPHOLOGY AND PHYSICAL PROPERTIES OF POLYVINYL ALCOHOL AND METHYL CELLULOSE (PVA/MC) THIN-FILM

oleh MOHD KHAIRUL BIN MOHD BARRI.....,no. matrik: UF14477.....

telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Fizik sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains Gunaan (Fizik Elektronik & Instrumentasi), Fakulti Sains dan Teknologi, UMT.

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DECLARATION

I hereby declare that this thesis entitled A Study Of Morphology And Physical Properties Of Polyvinyl Alcohol (PVA) / Methyl Cellulose (Or Methylcellulose) Thin Film is the result of my own research except as cited in the references.

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ABSTRACT

The application of polymer especially polyvinyl alcohol and methyl cellulose (PVA/MC) has generated much interest in various industry. In this research, characterization and properties of (PVA/MC) has been studied by several techniques. For the first method measurements reveal the surface morphology of PVA/MC in a form of powder and thin film. The image of the both PVA/MC surface has been carried out by Scanning Electron Microscope (SEM). Infrared detector was used to demonstrate the structure of PVA/MC. The result showed the bond group of PVA/MC in range between 500 cm^{-1} to 4000 cm^{-1} . The EIS was conducted in order to determine the conductivity of the PVA/MC sample. The conductivity of the samole found to be between 1.035×10^{-5} to $9 \times 10^{-6}\text{ scm}^{-1}$.

**KAJIAN BENTUK PERMUKAAN DAN FIZIKAL FILEM NIPIS KEATAS
POLYVINYL ALCOHOL DAN METHYL CELLULOSE
(PVA/MC)**

ABSTRAK

Aplikasi penggunaan polimer terutamanya polyvinyl alcohol dan methyl cellulose (PVA/MC) telah mencetuskan minat dalam pelbagai industri. Kajian ini telah dilakukan bagi mengetahui sifat serta ciri-ciri bagi PVA/MC dengan menggunakan beberapa kaedah. Kaedah pertama yang digunakan telah mendedahkan morfologi permukaan bagi PVA/MC dalam bentuk filem nipis. Mikroskop Pengimbasan Elektron telah menghasilkan imej permukaan kedua-dua jenis PVA/MC. Pengesan inframerah telah digunakan bagi menunjukkan struktur PVA/MC. Keputusan bagi kumpulan ikatan PVA/MC adalah di dalam skala di antara 500 cm^{-1} hingga 4000 cm^{-1} . Ujian kerintangan/pengaliran arus mengikut contoh sampel PVA/MC dan keputusan untuk ujian kerintangan/pengaliran menggunakan EIS adalah di sekitar 1.035×10^{-5} hingga $9 \times 10^{-6}\text{ scm}^{-1}$.