

**PREPARATION AND CHARACTERIZATION OF POLYMER COMPOSITES
BY USING SILICA AS FILLER**

MOHD SABRI BIN MOHD JOHAN

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This Final Year Project Report entitled “Preparation and characterization of polymer composites by using silica as filler” was submitted by Mohd Sabri bin Mohd Johan, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Polymer Technology, in the Faculty of Applied Science, and was approved by

Prof. Madya Dr Siti Zaleha Saad
Supervisor

B. Sc.(Hons.) Polymer Technology
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Prof Madya Mohammad Kamal Haji Harun
Dean

Faculty of Applied Science
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Prof. Madya Dr Siti Zaleha Saad
Project Coordinator

B.Sc.(Hons.) Polymer Technology
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Prof. Madya Dr. Azemi Samsuri
Head of Programme

B.Sc (Hons.) Polymer Technology
Faculty of Applied Sciences
Universiti Teknologi MARA
40450 Shah Alam
Selangor

Date: _____

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ABSTRACT

PREPARATION AND CHARACTERIZATION OF POLYMER COMPOSITES BY USING SILICA AS THE FILLER

This study was conducted to investigate the effect of filler on the physical and chemical properties of the HDPE / silica blend. The results showed the occurrence of minor interaction of polymer and powder which led to minor improvement on the mechanical properties of the blend. The most significant effect was the tensile properties whereby beyond the optimum limit of weight percentage silica loading, the tensile strength decreased. Other parameters such as the effective mixing and blending were found the main factors which affected the homogeneity of the blends which could affect the final properties. Therefore, silica particles need to be adhered to polyethylene matrix in order avoid internal stresses which could caused the weaknesses of the material.