PROCESSING AND THERMAL ANALYSIS OF PALM OIL AND DYE FILLED POLYPROPYLENE

NUSOIBAH NAAHIDHAH BINTI RUKMAN

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APPROVAL SHEET

This Final Year Project report entitled **"Processing and thermal analysis of palm oil and dye filled polypropylene"** was submitted by Nusoibah Naahidhah Binti Rukman, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Polymer Technology, in the Faculty of Applied Sciences, and was approved by

.....

Puan Hairani Binti Tahir
Supervisor,
B. Sc. (Hons.) Polymer Technology,
Faculty of Applied Sciences
Universiti Teknologi MARA.
40450 Shah Alam,
Selangor.

.....

Prof. Madya. Dr, Rahmah Mohamed
Co-Supervisor,
B. Sc. (Hons.) Polymer Technology,
Faculty of Applied Sciences
Universiti Teknologi MARA.
40450 Shah Alam,
Selangor.

.....

Prof. Madya. Dr. Siti Zaleha binti 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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ABSTRCT

PROCESSING AND THERMAL ANALYSIS OF PALM OIL AND DYE FILLED POLYPROPYLENE

The determinations of Polypropylene (PP) with additive namely palm oil and curcumin was investigated. Palm oil composed of fatty acids which were esterified with glycerol. Palm oil can act as lubricant and can enhance the flow rate of the polymer compounds. Curcumin can be used to bind with polymers and can act as antioxidant and reduce the toxicity of the polymers. The used of antioxidants in polymer processing can offer better stabilization of the polymer during processing and also prolong its useful life in the end application. The mixing process was done using twin screw extruder with melt temperature between 180°C to 205°C and screw speed of 258 rpm. The torque value was 10Nm. After mixing process, the extrudates were palletized and the pallet samples were tested for their thermal analysis by using Thermal Gravimetry Analysis (TGA), Differential Scanning Calorimetry (DSC), and Hot Stage Micron Microscope. TGA was used to determine

CHAPTER 1

1.1 Introduction

Turmeric (*curcuma longa*) which is the member of the ginger family, *Zingiberaceae* is also known as a rhizomatuos herbaceous perennial plant. In some Asian countries, it is also known as 'kunyit' or 'haldi'. The active ingredient in rhizomes is curcumin and it has earthly, bitter, peppery flavor and has a mustardy smell.

The curcumin is obtained when the rhizomes are boiled for several hours and then dried in hot ovens which then are grounded into a deep orange and yellow powder. The orange and yellow color of turmeric comes mainly from polyphenolic pigments, known as curcuminoids.