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UNIVERSITI TEKNOLOGI MARA

**ENVIRONMENTAL MANAGEMENT
SYSTEMS AND PRODUCT
INNOVATION IN POLYPROPYLENE
FIRMS TOWARDS ECO-EFFICIENCY**

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CONFIRMATION BY PANEL EXAMINERS

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ABSTRACT

This thesis presents the results of a study that evaluated thirty five polypropylene firms in Malaysia regarding their potential and factual contributions to the establishment of Environmental Management Systems (EMS) ISO14001:2004 for eco-efficiency. The sample includes innovations in products, environmental management program EMS ISO 14001:2004, government regulations and firms' eco-efficiencies. Firms that are successfully certified with ISO14001: 2004 standard are expected to demonstrate continual improvements in their environmental performances and controls on its significant environmental impacts of its activities, products and services, and achievement of their set environmental objectives and targets. Innovation on product through the establishment of environmental management systems (EMS) is believed to be the best solution to reduce the environmental impact of industrial activities and supports firms to promote and enhance their best practices for environmental performance. Therefore, environmental programs and innovations are needed not only for eco-efficiency and environmental performances, but to meet with the global and market pressures towards sustainable businesses. This study also discusses on the environmental issues by Polypropylene (PP) products that forces firm to demonstrate the best environmental practices while differentiating in the global market. As a petroleum by-product, PP contributes to oil dependency, and contribute to air, land and water pollution. Most of them are not biodegradable and remains present in landfills indefinitely. Most of the previous literature shows that the current practices by Malaysian PP firms on environmental management systems (EMS) are not adequate henceforth more complaints and campaigns to ban the products increases from all the countries in the world. This thesis approach differs from existing work as the analysis is focused on the question on how the innovation of environmental management systems encourages PP firm's eco-efficiencies. Questions were segregated into four parts; environmental management system, product innovations, government regulations, and firm's eco-efficiency. The pilot study has been conducted to analyze respondents' understanding on the questions. Questions were distributed in various way to the respondents; firms was firstly contacted through phone and sought for their permission to send for the questionnaire. Questionnaires were then posted to the firms with instructions on how to fill the survey and return it via enclosed stamped envelope. The second method used is by assigning a gate keeper at each of the PP firm to distribute the questionnaires. The gatekeeper was first briefed on the questionnaire. This study uses the conceptual model by Katja Grekova (2007) Environmental innovation: determinants and performance to explore the significance of EMS and product innovation towards PP firm's eco-efficiency. Finally, this study would also like to recommend that regulatory bodies that are responsible for the protection of product, health and safety and environmental management systems should give more consideration to the opportunities of EMS innovation in general for achieving their objectives and goals. Also, the major stakeholders in setting regulations, especially consumer and environmental organizations should systematically check the positive influence of EMS innovation on firms' towards eco-efficiencies.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

Chapter 1 of this study discussed on the background of the study, overview of Polypropylene (PP) firms in Malaysia, scope of the study, problem statements followed by research objectives and questions, significance of the study, hypotheses and summary for this chapter.

1.2 BACKGROUND OF STUDY

The growing issues on environmental pollution irrespective to Polypropylene (PP) plastic waste forcing government to strengthen environmental legislation and forcing PP plastic manufacturer to produce more eco-friendly product. PP waste is also believed to be the major source of creating global warming and other environmental impacts thus making consumers to be more conscious of the issue (Iwan Budhiarta et al., 2012). In Malaysia, the call to ban its use has been conducted with the 'plastic-free campaign' by Penang municipality and other states such as Pahang, Sarawak and Selangor since July 2009 and continued until today (Malaysia Plastic Manufacturer Association, MPMA 2013). The campaign urges consumers to buy certain brands of eco-friendly products and affected the sales of PP market and producers (MPMA, 2013). While consumers are buying more green products, PP firms have to realize the potential of innovation to sustain the market and cost savings. Innovation may include the process technology, materials and packaging and the designs of pro-environmental product to become the preferred choice for consumers and producers (Malaysia External Trade Development Corporation, MATRADE 2013).