

665.1

P77

2007

COMPARATIVE EVALUATION OF CANDLES PRODUCED USING
POLYETHYLENE WAX AND STEARIC ACID

RESEARCH STUDY

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April 2007

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POLYETHYLENE WAX AND STEARIC ACID**

A Research Study Submitted to the
Faculty of Science High School
College of Education
Cavite State University
Indang, Cavite

in partial fulfillment
of the requirements for graduation



00007134

*Comparative evaluation of candles produced
using polyethylene wax and stearic acid
665.1 P77 2007
RS-519*

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ABSTRACT

PONCIANO, FROILAN P., ROSELL, KARL ROSS J. and FERAER, RENMARSON N., Comparative Evaluation of Candles Produced Using Polyethylene Wax and Stearic Acid. Research Study. Cavite State University-Science High School. April 2007. Adviser: Dr Adelaida E. Sangalang.

The study was conducted at Agus-os, Indang, Cavite. It generally aimed to compare the quality of candles made from varying proportions of polyethylene wax and stearic acid. Specifically, it aimed to identify the difference between polyethylene wax and stearic acid when used in candle making; to compare the difference of candles made from varying proportions of polyethylene wax and stearic acid when used in candle making; and to determine which of the two materials will give the best quality candles.

Treatments were: Factor A: Treatment 1- 90% paraffin wax, 5% polyethylene wax, 5% crystalline wax, Treatment 2- 80% paraffin wax, 10% polyethylene wax, 10% crystalline wax, and Treatment 3- 70% paraffin wax, 15% polyethylene wax, 15% crystalline wax. Factor B: Treatment 1- 90% paraffin wax, 5% stearic acid, 5% crystalline wax, Treatment 2- 80% paraffin wax, 10% stearic acid, 10% crystalline wax, and Treatment 3- 70% paraffin wax, 15% stearic acid, 15% crystalline wax.

The quality of the candles was evaluated based on burn rate, burn thoroughness, color consistency, movement of the flame, and flame color. The statistical tools used in analyzing the data were Analysis of Variance, Duncan's Multiple Range Test, Mann-Whitney Test, and Kruskal Wallis Test.

Results showed that candles from polyethylene wax were better than candles from stearic acid in terms of flame color. The brightest light was produced in candles made

with the proportions of 70%paraffin wax, 15% polyethylene wax, 15% crystalline wax. The same proportions also gave the longest burn rate. The candles made from stearic acid were better than candles from polyethylene wax in terms of burn thoroughness and movement of the flame. In terms of burn rate, the candles made from higher concentrations of polyethylene wax were comparable to the candles made from lower concentration of stearic acid. The two types of candles were the same in terms of color consistency.

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COMPARATIVE EVALUATION OF CANDLES PRODUCED USING POLYETHYLENE WAX AND STEARIC ACID¹

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¹A research study submitted to the faculty of the Science High School, College of Education, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for graduation. Prepared under the supervision of Dr. Adelaida E. Sangalang

INTRODUCTION

Candles were among the earliest inventions of the ancient world used as a major source of light. By the early mid-ages, tallow candles are widely used and continue to grow for population-varied use. Today, candles are not only man's major sources of light; they symbolize celebration, mark romance, and ascent decoration. Candles continuously Cast warm glcw for all to enjoy because when lighted it brings serenity and pleasure.

There are two major types of candles; one is made from a combination of paraffin wax, crystalline wax and polyethylene wax. The other is made from a combination of paraffin wax, crystalline wax and stearic acid. Polyethylene waxes are made from ethylene produced from natural gas or by cracking petroleum naphtha. Ethylene is polymerized to produce waxes with various melt points, hardness, and densities. On the other hand, stearic acid is a colorless, odorless wax-like fatty acid occurring naturally in animal and vegetable fats and used in pharmaceutical operations, ointments, soaps, and