

CHAPTER 1



INTRODUCTION

Fang is a natural petroleum resource in Thailand. Fang oil refinery has capacity of 1000 barrels per day. After the low boiling fractions of the crude petroleum from Fang for example gasoline, kerosene etc. have been removed the crude fraction containing light distillate (LD) and heavy distillate (HD) is subjected to vacuum distillation. These products have high wax content, so they have high pour point. They can be used as low quality fuel oils especially heavy distillate fraction. In order to upgrade heavy distillate oil for lubricating application, it must be refined by suitable process.

In order to meet the requirement for lubricants with low pour point, the raw material for lubricant e.g., heavy distillate with high wax content has to be dewaxed to give low pour point lubricant. Therefore, petroleum wax is an unavoidable and unwelcome by-product arising from the dewaxing of lubricating and gas oil, but as more and more applications of this product are found, wax becomes to be a primary product in the refining operation.

In 1991 Thailand imported petroleum waxes from Australia, Burma, Switzerland, China, Germany, Denmark, France, United Kingdom, Iraq, Japan, Sweden, Taiwan, and USA with the value about sixty-five million baht. Therefore, manufacturing petroleum waxes in Thailand will decrease the import of petroleum waxes from foreign countries.

Petroleum waxes are manufactured in Thailand as slack waxes. They are mostly used as candle because of their low purity. They can be used in other applications and have low price. Thus purification of petroleum waxes become a method for upgrading the petroleum waxes

Objectives and scope of this study

The objective of this work is to purify petroleum waxes that were separated from Fang heavy distillate and to test physical properties of Fang refined waxes.

The purification of petroleum waxes for this study is two steps process. The first step is deoiling by methyl ethyl ketone (MEK) at various ratios of wax to MEK and the second step is decolorizing by decolorizing agents , i.e. activated carbon, fullers earth, and clay. After purification, refined petroleum waxes are tested for their physical properties , i.e. oil content, melting point, congealing point, color, hardness, content of benzene, and carbon distribution of wax.

Advantages for this study

1. To get an idea for manufacturing refined petroleum waxes in industries
2. To increase the value of heavy distillate from Fang
3. To decrease the import of petroleum waxes from foreign countries