

CHAPTER I

INTRODUCTION

Lubricating grease is a solid to semi-fluid product, consisting of a fluid lubricant (oil) and a thickening agent. Other ingredients imparting particular properties may be included. Grease is classified by type of thickener because it is the greatest influence on the final properties of grease, such as simple soap thickened, complex soap thickened or non-soap thickened. Calcium grease is the simple soap thickener, it has smooth and buttery appearance as well as good water resistant. It is used in rolling bearing, in gearboxes and in general industrial application where good water resistance is needed.

At present, calcium greases had the problem due to the consistent stability when stored for 3 to 7 days. As a result, the calcium grease is out of acceptable range due to high cost to improve their quality.

Therefore, the studying on the effect of base oil type, water content and temperature on properties of calcium grease should be helpful to improve and develop their quality and cost in processing.

Aim of this research

The aims of this research are to study the effect of base oil type, water content, saponification rate and surfactant on properties of calcium grease, such as penetration number, dropping point and water washout.

In this study, calcium soap is made by reacting calcium hydroxide (lime) with fatty acid (palm). Then blended with different types of base oil, such as 100% paraffinic, 100% naphthenic and mixed base oil between naphthenic oil and paraffinic oil in ratio of 80:20, 70:30 and 60:40. The effect of water content was studied by varying water contents for 6%, 8%, 10%, 12% and 14% in rehydration step.

In addition, the effect of saponification rate was studied by varying heat rate in saponification step. Surfactant was mixed in base oil to study the effect of surfactant on properties of calcium grease. Then the properties of prepared calcium greases were tested for the consistency in 1, 7, 30 days, dropping point, water content and water washout by following standard method of the Japanese Industrial Standard (JIS) and American Society for Testing and Materials (ASTM).



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย