FINAL ASSIGNMENT

DESIGN AND CONSTRUCTION

ANALYSIS OF WEAR PATTERN ON BALL BEARING LUBRICATED BY OLIVE OIL, SUNFLOWER OIL AND CORN OIL AS BIOLUBRICANT

Conducted as one of the requirements to finish Undergraduate Programme (S1)

By :

KAPRI PRATAMA
1210912059

Supervisor : Dedison Gasni, Ph.D

MECHANICAL ENGINEERING DEPARTMENT

ENGINEERING FACULTY - ANDALAS UNIVERSITY

PADANG, 2018

ABSTRACT

The current lubricant that is used in automotive parts has major contribution in damaging the environment, especially on aquatic environment. The increasing prices of crude oil, the depletion of crude oil reserves in the world, and global concern in protecting the environment from pollution increase the interest in developing and using environment-friendly lubricants derived from alternative sources. Based on recent research, vegetable oil may fulfill those qualifications because of the advantages that it offers . Those oil are called Biolubricant. The lubricant that will be used on this research are sunflower oil, corn oil and olive oil. Those oil will be tested on self-aligning ball bearing that is given some load and the wear pattern on ball, inner and outer ring will be compared with each other. Worn surfaces of the ball bearing were examined by using optical microscope. The results showed that the wear on ball bearing lubricated by corn oil was the roughest while ball bearing lubricated by using olive oil was the smoothest. The scar width of ball bearing lubricated by corn oil was the largest while the scar width of ball bearing lubricated by olive oil was the smallest. These concluded that at rotation of 2840 rpm, the increasing of viscosity made the scar width become lower.

Keywords : Biolubricant, environment, ball bearing, wear, scar width