

A CRITICAL REVIEW ON DIFFERENT TYPES OF WEAR OF MATERIALS

Dr. A. Devaraju

Principal and Professor,
Department of Mechanical Engineering,
Adhi College of Engineering and Technology,
Affiliated to Anna University,
Kanchipuram-631 605, Tamilnadu, India

ABSTRACT

Many mechanical equipments are subjected to sliding contact in real time applications. Pumps, valves, belt drives, bearings, machinery guide ways, piston- cylinder arrangements etc. are the few important sliding components which are continuously subjected to sliding wear. Much mechanical equipment's failure occurred due to wear related problems. Therefore, understanding of different wear mechanism is important to design the mechanical components. In this paper, various wear mechanisms have been discussed with the help previous published research works and text books.

Key words: Wear Mechanism, Wear Rate, Mechanical Components, Lubrication

Cite this Article: Dr. A. Devaraju. A Critical Review on Different Types of Wear of Materials, *International Journal of Mechanical Engineering and Technology*, 6(11), 2015, pp. 77-83

<http://www.iaeme.com/currentissue.asp?JType=IJMET&VType=6&IType=11>

1. INTRODUCTION

When two solid surfaces are in contact, there is damage to the surface and/or subsurface. Wear is the removal of solid metal from the one or both surface of which are in solid state contact. Wear is quantified by the term 'wear rate' which is defined as "the mass or volume or height loss of material removed per unit time or sliding distance". The wear is characterized by mild and severe wear. The outcome of mild wear, the worn surfaces is smooth and smaller in wear debris (typically 0.01 μ m to 1 μ m in particle size).

In contrast, the severe wear results in larger wear debris size (20 μ m to 200 μ m) which can be seen in naked eye and roughened worn surface. The important wear mechanisms are adhesive wear, abrasive wear, delamination wear, erosive wear, fretting wear, fatigue wear and corrosive wear [1]. The wear behavior of materials is important in tribology like frictional force [2]. The wear surfaces can be protected