
Assessment of Surface Fatigue Wear on Gear Tooth Contacts Using Tribological Parameter Analysis.

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Abstract

Gear is one of the most common and important machine elements extensively in the field of power transmission, it has wide applications in automotive, marine, agricultural and aviation industries. Improper maintenance of a geared system leads to loss of human life and other economical losses. Operating conditions such as change in temperature, load, viscosity lead to reduction in lubricant film thickness and oil degradation which result in gear failure such as scoring, pitting, scuffing and spalling. This paper presents the results of experimental investigations carried out to assess surface fatigue failure in spur gears mounted on a single stage gear box operated under constant load and speed conditions. The analysis of various parameters such as lubricant film thickness, specific film thickness and friction coefficient provide a reliable diagnostic information to assess surface fatigue failure developed on gear tooth contact surfaces.

Keywords: Gears, specific film thickness, pressure-viscosity coefficient, micro pitting.