

Behavior of Material Under Combination Between Plain and Fretting Fatigues

Mohammad Almajali¹

¹Affiliation not available

June 2, 2020

Abstract

The Material failure can be classified into several types failure including fatigue which is also classified into plain fatigue and fretting fatigue. Many studies were carried out to understand the behavior of the material under the condition of one those two types only. None of the previous studies considered testing the material under a combination between plain and fretting fatigue where most of the components in engineering and industrial application subjected to. This study is directed to that end. Five tests were conducted with different ratio between the plain and fretting fatigue. When half of the whole fretting fatigue life was applied initially and then followed by the plain fatigue cycles until a failure, the plain fatigue was found to have no impact on the material life comparing to fretting fatigue. This shows that most of the fretting fatigue life is expended in the crack initiation. The ratio between the plain fatigue and the fretting fatigue has significant effect on fatigue life. If this ratio decreases the effect of the fretting fatigue increases that results in reduction of the fatigue life. This study was done under constant contact load, so it is recommended to investigate the material under combination between plain and fretting fatigue with variable contact load

Hosted file

Combination Fatigue.docx available at <https://authorea.com/users/329079/articles/456200-behavior-of-material-under-combination-between-plain-and-fretting-fatigues>