

## ABSTRACT

Fatigue on metal is one of the common phenomenons that people have been continuously exploring and trying to describe the whole process. This type of failure occur when component are subjected to cycle loading that is usually under the yield strength of the material itself. Leaf spring is one of the example for the component that dealing with cyclic loading. Sample of parabolic spring that fails from the fatigue test was study using optic and scanning electron microscope. From the analysis, there is some different or change in term of grain size but not very significant to fatigue properties. This paper objective is to study the microstructure behavior in term of size evolution between both areas and study the relation to the fatigue failure.

**Keywords:** leaf spring, microstructure, fatigue