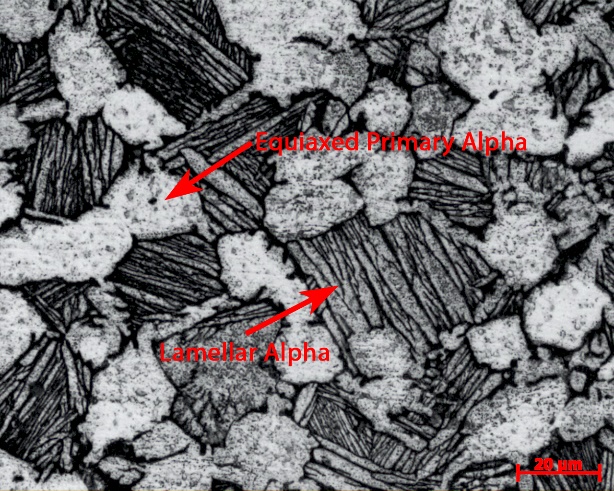
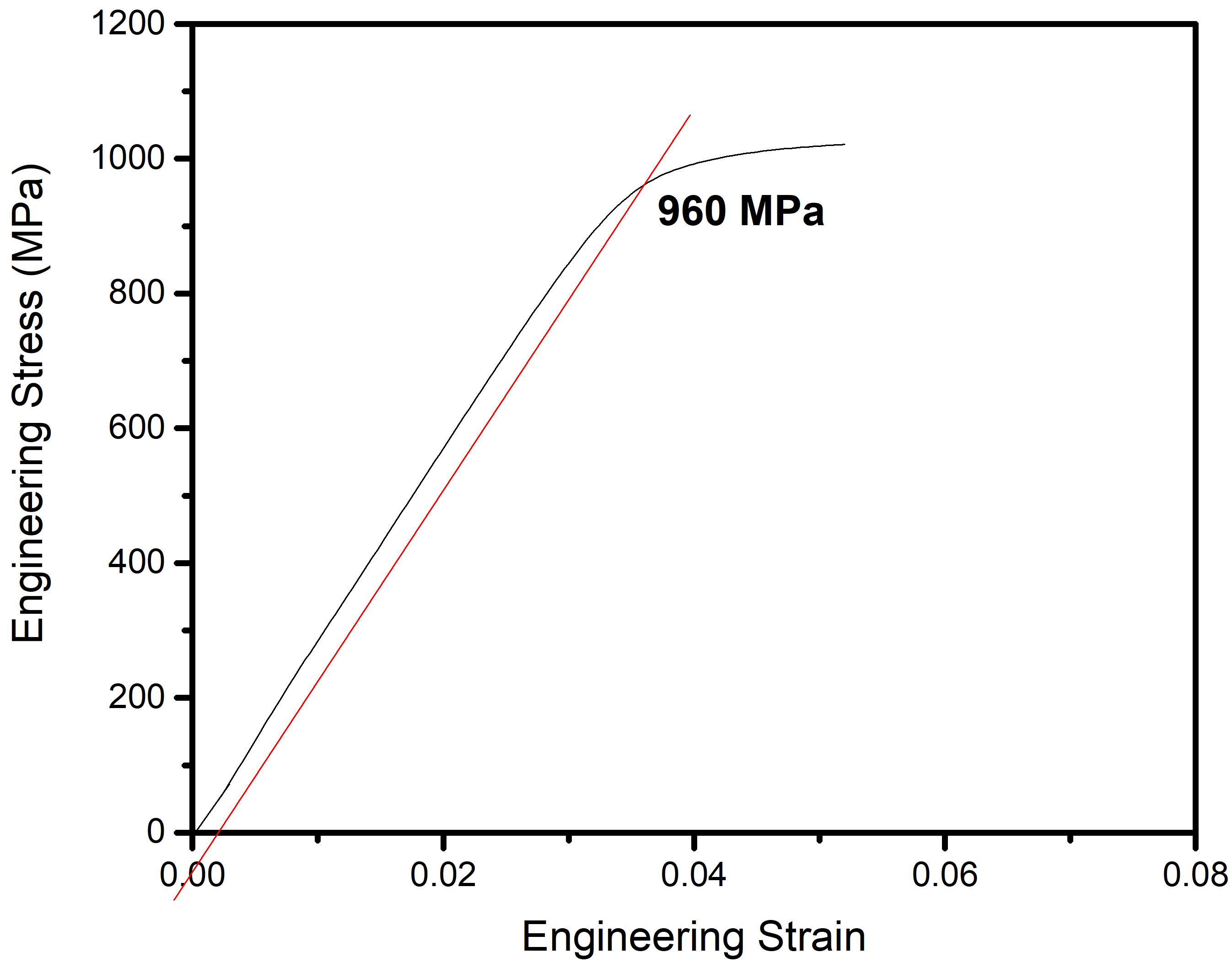
# **Fatigue studies on Ti-6242 and Ti-6246 Alloys**

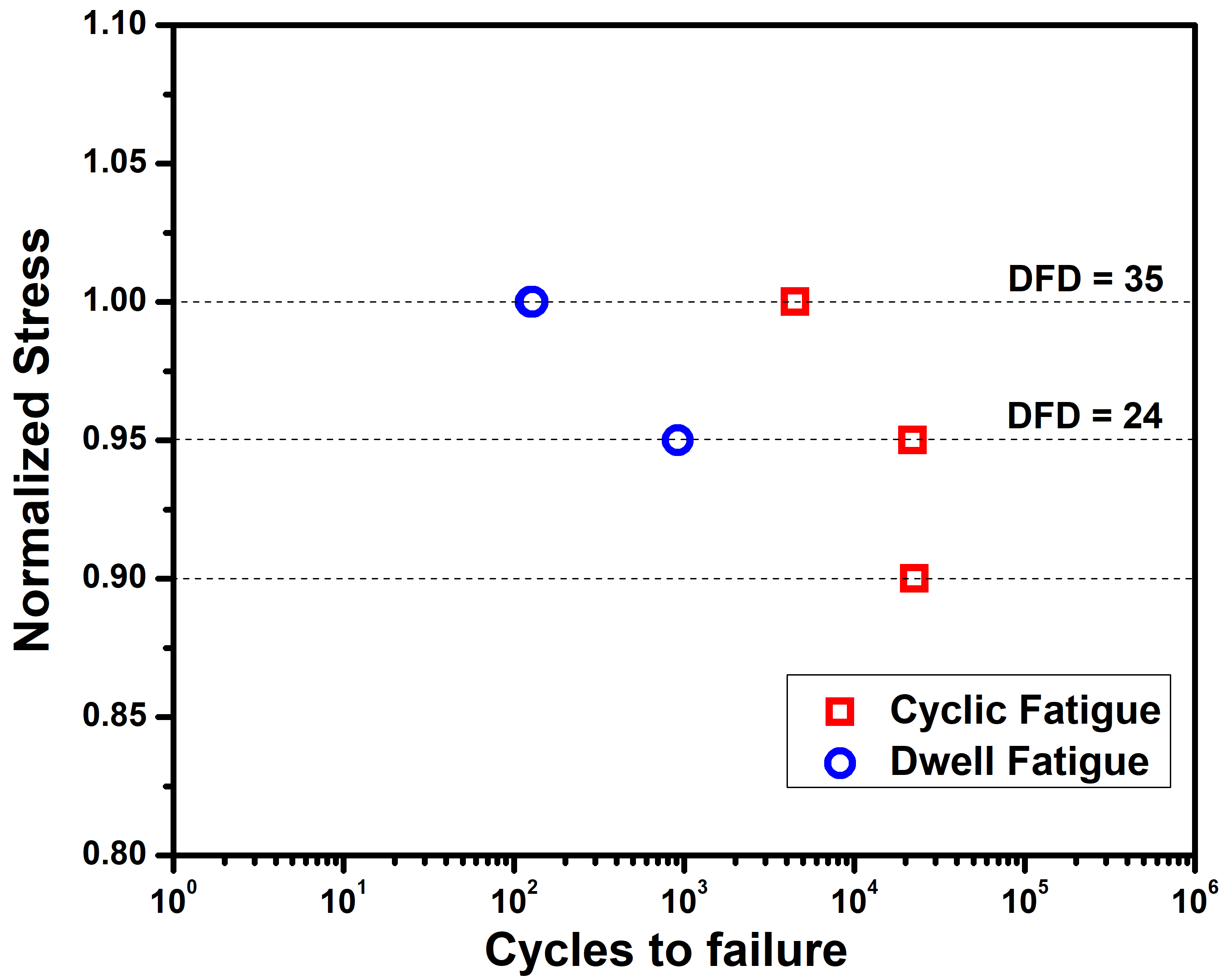
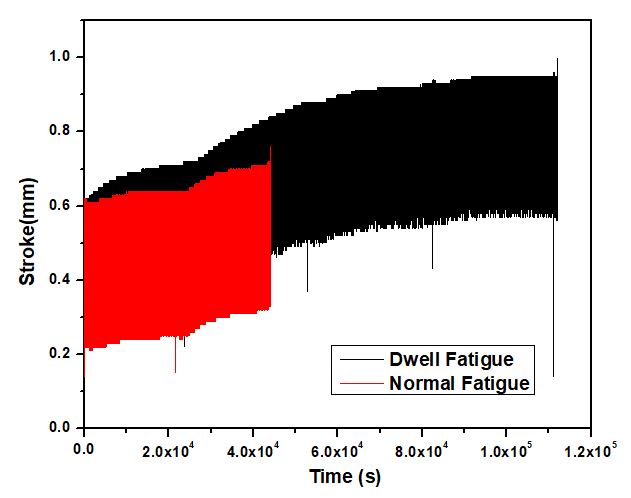
Initial work involved measuring fatigue life for as-received Ti-6242 alloys. The Yield strength of as-received Ti-6242 was found to be 960 MPa, which was measured from a tensile test at a constant strain rate of 3.3 \* 10-2 S-1. Optical micrographs of Ti-6242 and Ti-6246 are shown below. The heat treatment condition for Ti-6242 was to maintain the same equiaxed alpha volume fraction of as-received Ti-6242 (measured to be 33%) and increase its grain size. The heat treatment temperature for the required volume fraction was calculated to be 7650C from several heat treatment procedures.

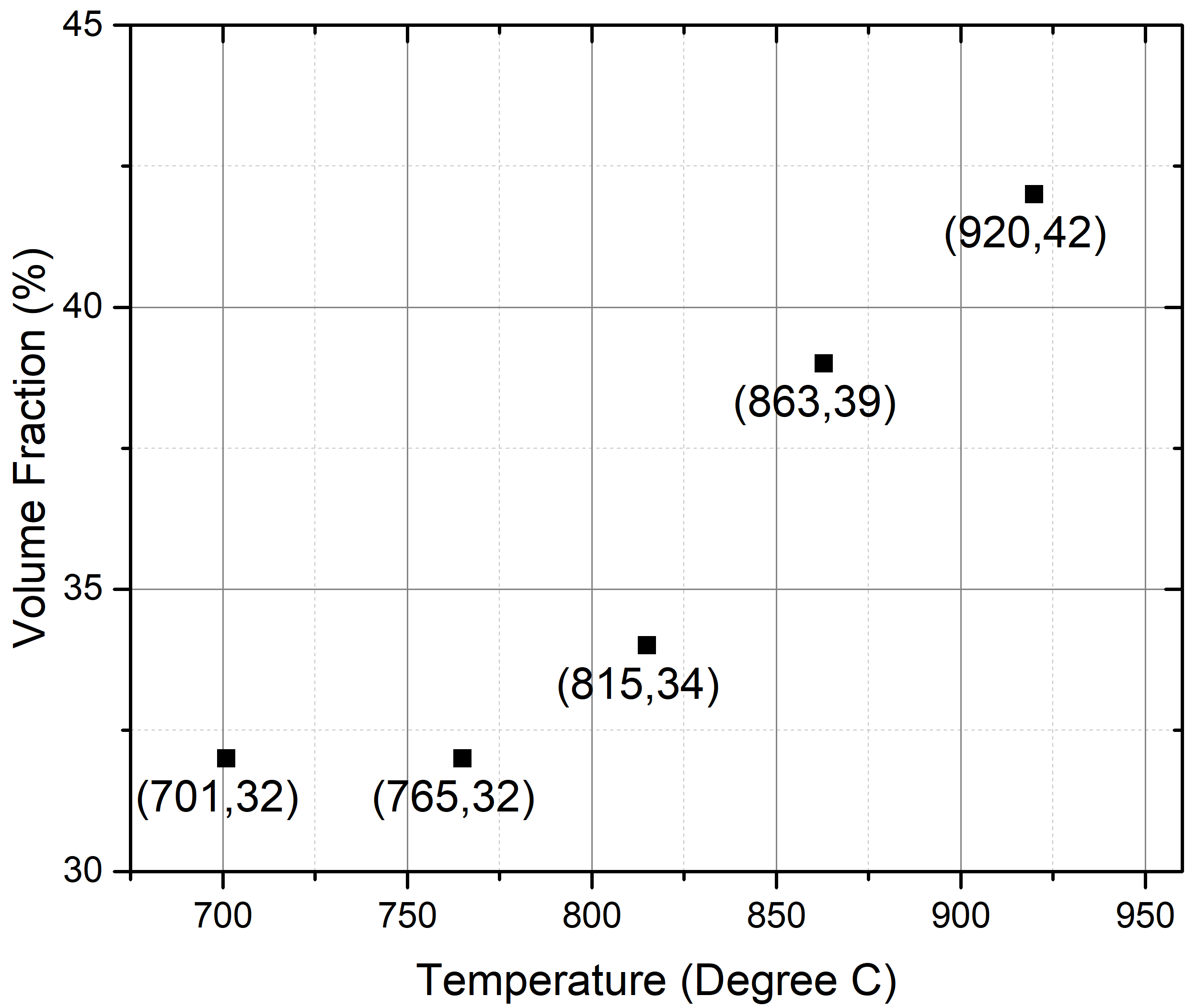
**Ti-6242 (500x) Ti-6246 (500x)**



**Tensile Test**

**S-N Curve Displacement Vs Time**



**Volume Fraction of equiaxed alpha for different heat treatment conditions**