

UNIVERSITI TEKNOLOGI MARA

**EXPLORE THE EFFECT OF HIGH-
TEMPERATURE TORSION ON MATERIAL
PROPERTIES**

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ABSTRACT

This experimental study aims to examine the mechanical behavior of a titanium alloy under torsional loading at high temperatures. The material becomes stronger and more ductile at greater strain rates, which is an issue because it increases strain rate sensitivity. Therefore, this experiment was conducted to examine how high temperature torsion affects the strength, stiffness and ductility of material. High-temperature torsion experiments were conducted using an Instron universal testing machine capable of applying controlled torque to the sample. The experiments involved subjecting titanium alloy samples to torsional deformation at elevated temperatures while monitoring torque, rotation angle, and temperature.

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