# Mechanical Tensile Testing of Titanium 15-3-3-3 and Kevlar 49 at Cryogenic Temperatures

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Titanium 15-3-3-3 and Kevlar 49 are highly desired materials for structural components in cryogenic applications due to their low thermal conductivity at low temperatures. Previous tests have indicated that titanium 15-3-3-3 becomes increasingly brittle as the temperature decreases. Furthermore, little is known regarding the mechanical properties of Kevlar 49 at low temperatures, most specifically its Young's modulus. This testing investigates the mechanical properties of both materials at cryogenic temperatures through cryogenic mechanical tensile testing to failure. The elongation, ultimate tensile strength, yield strength, and break strength of both materials are provided and analyzed here.