

Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Texture Dependency of High Strain Rate Properties of Ti-6Al-4V¹ EUAN WIELEWSKI, CLIVE SIVIOUR, NIK PETRINIC, University of Oxford — Over the last few decades the characterisation of Titanium alloys has become increasingly important, mainly due to the requirement for better understanding of lightweight structural materials in aerospace applications. This trend is further strengthened by the emergence of new manufacturing and processing technologies promising Titanium alloys at a lower price, placing them within the range of automotive and consumer product manufacturers. A key aspect of fully understanding the behaviour of Titanium alloys is to determine how varying microstructure affects high strain rate properties. This paper reports the data from high strain rate characterisation tests that have been carried out on four Ti-6Al-4V plates with differing microstructures in both tension (longitudinal, transverse directions) and compression (longitudinal, transverse, through thickness directions). Tension and compression Split-Hopkinson Pressure Bars were used to achieve strain rates of 10^3 s^{-1} . The data from these characterisation tests can then be used to evaluate the affect of microstructure on the anisotropic properties of Ti-6Al-4V.

¹Thanks goes to TIMET, Rolls-Royce and the EPSRC for their support of this research, with a special thanks to TIMET for kindly supplying material.

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Date submitted: 20 Feb 2009

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