

ABSTRACT

It is important to account for residual stress relaxation phenomenon in the design of the component. Specimens of 2024-T351 aluminium alloy were used in this study. The specimens were shot peened under three different shot peening intensities. Cyclic tests for two load magnitudes were performed for 1, 2, 10, 1000 and 10000 cycles. Residual stresses, microhardness and the cold work percentage were measured at initial state and after each loading cycle for the three shot peening intensities and for the two loads. The study revealed that most of the drop in the residual stress, microhardness and cold work happened in the first cycle are dependent on the applied load.

Keyword: Residual stress relaxation; Shot peening; X-ray diffraction