

Abstract Submitted
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Precipitant diffusion and surface segregation in Al Alloys near melting point: Al 2024¹ AUSTIN MOHNEY, INDRAJITH SENEVIRATHNE, Lock Haven University of Pennsylvania — Industrial Al alloys are precipitant hardened with an impurity phase. Micro precipitants introduce various novel physical properties to the systems system. The diffusion of these constituents under thermal gradient was studied by sequentially increasing temperatures near melting point as it was observed to better facilitate the migration of precipitants. Study is based on Al 2024, age hardened, high strength AL alloy, annealed at incremental temperatures near melting point of 500 C and was observed in Scanning Electron Microscopy (SEM) and Energy Dispersive X ray Spectroscopy (EDX). Solvent cleaned near surface region of the alloy was investigated with observation of differential migration of constituent Cu, Fe Mg and Zn precipitants. The migrations were modeled in terms of diffusion coefficients and established literature of the participating species. Study will attempt to correlate the elemental concentration variation with applied elevated heat stress in industrial settings.

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