

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

SEM and EDX Study of Al alloy Precipitant Surface Segregation due to Annealing¹ AUSTIN MOHNEY, INDRAJITH SENEVIRATHNE, Department of Geology and Physics, Lock Haven University of Pennsylvania — In Al alloys, precipitation hardening by impurity phase metallic microstructures in the main bulk metal is a norm. This results in resilience against dislocations, and improvement in other favorable attributes. We have studied Al 2024, Al 5052, Al 6061, and Al 7075 systems and their constituent precipitant migration due to thermal annealing. Scanning Electron Microscopy (SEM) was used to study the structure/morphology. Electron Dispersive X ray Spectroscopy (EDX) was used to study the near surface elemental variations. At annealing these alloys systems exhibit temperature activated relative segregation of the precipitants. Considering main constituents, it was observed Cu precipitant in 2024, and Mg precipitant in 6061 segregated to the surface. Further, increment in the ambient C absorption and O desorption on the surface layers were observed. Surface morphology variations were also studied at annealing using SEM. The data obtained will be discussed in terms of standard diffusion models for the alloys and corresponding diffusion coefficients.

¹NSF Grant #: 0923047 and PASSHE FPDC (LOU # 2010-LHU-03)

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Date submitted: 23 Dec 2010

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