

Ternary and Higher Order Aluminum Phase Diagram Updates

Ternary aluminum phase diagrams were compiled by ASM International (*Handbook of Ternary Alloy Phase Diagrams*, eds., P. Villars, A. Prince, and H. Okamoto, Vols. 3-4) and by VCH Verlagsgesellschaft, Germany (*Ternary Alloys*, eds., G. Petzow and G. Effenberg, Vols. 3-8). They cover the period from 1900 to 1990. A large number of new publications have appeared in the literature in the last 15 years. It is the purpose of this Addendum to review briefly the new information, using as the starting point either the data compiled in the ASM volumes or any other later evaluation.

Cast, wrought and heat-treated industrial aluminum alloys contain the common alloying elements Cu, Fe, Mg, Mn, Si and Zn. Much of the experimental information on ternary phase diagrams and some higher-order diagrams involving these elements became available around 1950 or earlier. Measurements of the thermodynamic properties in such systems came in later years. With the increasing level of sophistication in thermodynamic modeling and computing, reliable computed phase diagrams of such systems are now available. Further, the computed phase diagrams have been used as the base to incorporate the kinetic and morphological features to predict the microstructures of multicomponent commercial alloys. A number of research scientists have contributed to this effort, notably the group at Wisconsin led by Professor Y.A. Chang, those contributing to the COST 507 program and the experimental contributions of the Russian scientists.

This issue carries updates on eight ternaries Al-Cu-Mg, Al-Cu-Si, Al-Cu-Zn, Al-Mg-Mn, Al-Mg-Si, Al-Mg-Zn, Al-Mn-Si, and Al-Si-Zn and on nine higher-order systems Al-Cu-Fe-Si, Al-Cu-Mg-Si, Al-Cu-Mg-Zn, Al-Fe-Mg-Si, Al-Fe-Mn-Si, Al-Cu-Fe-Mg-Si, Al-Fe-Mg-Mn-Si, Al-Cu-Fe-Mg-Ni-Si and Al-Cu-Mg-Sc-Zn-Zr.

This work was supported by the Indian Institute of Metals, Calcutta.

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Editor

Phase Diagrams of Ternary Iron Alloys