

Ternary and Higher Order Iron Phase Diagram Updates

Ternary and quaternary iron phase diagrams have been critically evaluated and published as a series of monographs by the cooperating societies: ASM International, Indian Institute of Metals and Institute of Materials (UK). Updates on multicomponent iron phase diagrams are published regularly in this journal.

In recent years, an increasing number of application-oriented thermodynamic calculations of multicomponent steel systems have appeared in the open literature. Using commonly available softwares such as Thermo-Calc and an updated steel database, these calculations are carried out readily for any multicomponent system. The systems reviewed here are from the published literature. They are relevant to applications such as high-speed steels, creep-resistant materials, power generation equipment, gas porosity problem due to nitrogen evolution, optimum inter-critical heat treatment temperature, identification of a minimum melting alloy composition in a multicomponent system and sigma phase embrittlement in duplex stainless steels. The reviewed updates are Al-C-Fe, Al-C-Fe-Nb, C-Cr-Fe-Mo, C-Cr-Fe-V, C-Fe-Mn-Mo, C-Fe-Mo-V, C-Fe-N-V, C-Co-Fe-Ni-W, C-Cr-Fe-Mo-V, Cr-Fe-Mn-N-Ni, Cr-Fe-Mo-N-Ni, C-Cr-Fe-N-V-W, C-Cr-Fe-Mo-N-Nb-V, C-Cr-Fe-Mn-Mo-N-Ni-Si, and Al-C-Cr-Fe-Mn-Mo-N-Ni-Si-V.

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

V. Raghavan

Editor

*Phase Diagrams of Ternary Iron Alloys
Parts 1, 2, 3, 5 and 6*