

## Ternary and Higher Order Iron Phase Diagram Updates

Updates on multicomponent iron phase diagrams are published regularly in this journal. These brief reviews include new phase diagrams of systems that are investigated for the first time, as well as previously investigated systems on which additional information or substantial revision of existing data has become available.

This issue carries updates on five ternary oxide systems: Al-Fe-O, Fe-Mg-O, Fe-Ni-O, Fe-O-Sn, and Fe-O-Zn, as well as six quaternary systems: Al-Fe-Ni-O, Al-Fe-O-Zn, Fe-Mg-Ni-O, Fe-Mg-O-Zn, Fe-O-Si-Zn, and Fe-O-Sn-Zn. Much of the recent work on these slag systems has been carried out by the pyrometallurgy group led by Professors P.C. Hayes and E. Jak at the University of Queensland, Australia.

In most of the modern work on these oxide systems, direct measurement of the compositions of coexisting phases in annealed samples has been carried out with the aid of the electron probe microanalyzer. This way, the effect of losses during annealing of elements with a high vapor pressure is avoided, resulting in a significant improvement in the reliability of the results. Further, the mutual solid solubility between compounds is more accurately characterized.

The phase diagrams determined in air provide useful data for practical applications. From a basic point of view, however, the equilibrium partial pressure of oxygen generally varies across a phase diagram. Caution is, therefore, necessary in interpreting such "air" diagrams.

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*Editor*

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