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Autore	Dybkov V. I (Vasilii Ivanovich)
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Controlled Growth of the ApBq and ArBs Layers; 2.9 Nibi Layer: Missing or too Thin?
2.10 Two Compound Layers: Short Conclusions3. Occurrence of Multiple Compound Layers at the a-b Interface; 3. Occurrence of Multiple Compound Layers at the a-b interface; 3.1 Chemical Reactions at Phase Interfaces in a Multiphase Binary System; 3.2 A System of Differential Equations Describing the Growth Process of Three Chemical Compound Layers between Elementary Substances A and B; 3.3 Initial Linear Growth of Three Compound Layers; 3.4 Transition from Linear to Non-Linear Layer-Growth Kinetics; 3.5 Critical Values of Compound-Layer Thicknesses and their Influence on Layer-Growth Kinetics
3.6 Diffusional Stage of Formation of Compound Layers3.7 Sequence of Compound-Layer Formation at the A-B Interface; 3.8 Formation of Intermetallic Layers in Ni-Zn and Co-Zn Diffusion Couples; 3.9 Multiple Compound Layers: Short Conclusions; 4. Growth Kinetics of the same Chemical Compound Layer in Various Reaction Couples of a Multiphase Binary System; 4.1. Growth of the ArBs Layer in the A-B Reaction Couple; 4.2 Growth of the ArBs Layer in the ApBq-B Reaction Couple; 4.3 Growth of the ArBs Layer in the ApBq -AlBn Reaction Couple
4.4 Comparison of the Growth Rates of the ArBs Layer in Various Reaction Couples of the A-B Multiphase Binary System

Sommario/riassunto

This monograph deals with a physico-chemical approach to the problem of the solid-state growth of chemical compound layers and reaction-diffusion in binary heterogeneous systems formed by two solids; as well as a solid with a liquid or a gas. It is explained why the number of compound layers growing at the interface between the original phases is usually much lower than the number of chemical compounds in the phase diagram of a given binary system. For example, of the eight intermetallic compounds which exist in the aluminium-zirconium binary system, only ZrAl3 was found to grow as a separate