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KATO Teruo, OGAWA Shiro

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The Structure of Cobalt Films Formed on Rocksalt and Mica by Vacuum Evaporation*

Teruo Kato and Shiro Ogawa

The Research Institute for Iron, Steel and Other Metals

Abstract

The structure and orientation of cobalt films several hundred Å thick formed on cleavage faces of rocksalt and mica by vacuum evaporation under the pressure of $10^{-7}$–$10^{-6}$ Torr have been studied by transmission electron diffraction in relation to the substrate temperature. When the temperature is low, the h.c.p. and f.c.c. phases coexist in cobalt films formed on both the substrates, but as the temperature is elevated, the h.c.p. phase becomes predominant on mica and the f.c.c. phase does on rocksalt, resulting in the films consisting purely of the single phases at temperature above 300°C. Even films formed on rocksalt at the temperature at which only the single phase is formed at a large thickness have been observed to consist of the two phases at a small thickness.

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