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Ageing Characteristics of Cu-Be-Al Alloys*

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*The Research Institute for Iron, Steel and Other Metals***Abstract**

The ageing characteristics of the Cu-Be-Al ternary alloys, containing 9~11 at% Be and 6~9 at% Al, were studied by means of hardness and tensile tests, optical and transmission electron microscopy, X-ray and electron diffraction, and calorimetric measurements. The investigation was done mainly on the specimen containing 9.07 at% Be and 9.05 at% Al, which was initially quenched from 800°C, where the two phases (α and β) are in equilibrium, and then aged at 340°C for various periods. The changes in various properties during ageing were due to the precipitation in the α phase and the decomposition of the β phase, both of which terminated in the equilibrium state, ($\alpha+\gamma$). The most hardened state attained by 1.5hr ageing was attributed to the formation of G.P. zones in the α phase and the decomposition of the β phase into the α and intermediate phases. The crystallographic orientation relations between the matrix and these phases in the course of the ageing process were determined. Finally the age-hardening of the alloys was briefly discussed.

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