Abstract

The as-quenched microstructure of the alloy A ($Cu_{2.9}Mn_{0.1}Al$) was $D0_3$ phase containing plate-like γ_1' martensite. When the manganese content was added to the 8 at%, the as-quenched microstructures of alloys B ($Cu_{2.8}Mn_{0.2}Al$) and C ($Cu_{2.7}Mn_{0.3}Al$) were changed to ($D0_3$ + L-J) phases. However, when manganese content was added over 8 wt. pct. further, the as-quenched microstructure of the Alloy D ($Cu_{2.6}Mn_{0.4}Al$) was a mixture of ($D0_3$ + $L2_1$+L-J) phases. Thus, the martensite start（Ms） temperature was decreased with increasing the manganese content. On the contrary, the amount of the L-J particles was increased with increasing the manganese content.

Both of the a/2<100> and the a/4<111> APBs could be observed by the A2→B2→$D0_3$ continuous ordering transition during quenching in the both alloy B and alloy C. The a/4<111> APBs have never been found by other workers in the Cu-Mn-Al

alloys before. Besides, no evidence of the a/4<111> APBs could be observed in the as-quenched microstructure of the alloy D. It clearly shows that the a/4<111> APBs was increased with increasing the manganese content.