

DSC analysis of commercial Cu-Cr-Zr alloy processed by equal channel angular pressing

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Abstract: Samples of a commercial Cu-1Cr-0.1Zr (mass fraction, %) alloy were subjected to equal channel angular pressing (ECAP) up to 16 passes at room temperature following route Bc. Differential scanning calorimetry (DSC) was used to highlight the precipitation sequence and to calculate the stored energy, recrystallization temperature and activation energy after each ECAP pass. On another hand, electrical properties were correlated with the dislocation density. Results show that the stored energy increases upon increasing ECAP pass numbers, while the recrystallization temperature decreases significantly.

Keywords : equal channel angular pressing (ECAP), Cu-Cr-Zr alloy, differential scanning calorimetry (DSC), electrical conductivity, stored energy