

**CALORIMETRIC, DILATOMETRIC AND MICRO-HARDNESS STUDY ON THE PROPERTIES OF THE TERNARY AU-CU-AG ALLOY**

IMENE Lamiri, HAMANA D.

*University of Constantine 1, Constantine, Algeria***Abstract**

Alloys which have the gold as principal constituent have been the subject of research since a long time, because of their very particular properties and of their vast scopes of application and especially the Au-Cu and Au-Cu-Ag systems. and as it is well known that the mechanical properties have a direct report with the order-disorder transformation as well as with the composition of the alloy, therefore, it is important to know the effect of the existence and the concentration of the silver-in the Au-Cu system- on the ordering and disordering process of this system, so for that we have used the dilatometry, the differential scanning calorimetry (DSC) for the thermal analyzes and the micro-hardness measure for the mechanical study. The thermal analyze of samples which having the atomic compositions: Au-39%Cu, Au-35%Cu-25%Ag, Au-5%Cu-43%Ag and Au-8%Cu-56%Ag have shown that the increase of Ag's concentration leads for an acceleration of the ordering reactions and a stabilization of the ordered phase AuCuI, thus, a deceleration of the disordering reaction. We note, also the appearances of several new reactions at a high temperatures.

**Keywords:** Dilatometry, DSC, defects: point defects, grain boundaries, ordering process

**Author did not supply full text of the paper/poster.**