

Influence of Al and Ti Additions on Microstructure and Mechanical Properties of Leaded Brass Alloys

Brass has an attractive combination of properties, namely, good corrosion resistance, good wear properties, and high thermal and electrical conductivity. In this study, influence of selected alloy additions (Al and Ti) on performance of leaded brass alloys (CuZn39pb3) was investigated. The observation of microstructures, compression tests, and hardness tests were performed. The results of metallographic and mechanical tests indicate some influence of small amount additives of Al and Ti. Optical emission spectrometer (OES), light optical microscope (LOM), micro-Vickers hardness tester, and compression testing machine were used in this investigation. Consequently, Al had a significant effect on microstructure and mechanical properties of CuZn39Pb3 alloy. A larger compression strength at 0.31% wt of Al was obtained, as compared with the other alloys. Adding of Al and Ti led to the modification of the microstructure; thus, the compression strength was increased.