

CU-BASED BULK METALLIC GLASSES WITH HIGH PLASTICITY

ANSU J. KAILATH¹, SOUMEN MANDAL
AND GOUTAM DAS

The excellent physical, chemical and mechanical properties of Bulk Metallic Glasses (BMG) have evoked the curiosity of the research fraternity worldwide. Though the fracture strength exhibited by bulk metallic glasses are superior to conventional crystalline alloys, limited room temperature plastic strain is a major drawback for their engineering applications. This paper reports development of Cu-based bulk metallic glasses exhibiting high plastic strain using an indigenously developed suction casting system. Several Cu-Zr-Ti (BMG) in the form of rods having diameter up to 4 mm (length: 70 mm) and plates having thickness: 1.5 mm (length: 70 mm, breadth: 8 mm) have been prepared. This Cu-Zr-Ti (BMG) are found to have plastic strain only up to 2%. Efforts to improve plastic strain by minor addition of certain elements (Cu-Zr-Ti-Me) have resulted in enhancement of the plastic strain to 16%.
