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The goal of this work was to examine the effect of the concentration of a high melting point element on the crystallization of a bulk metallic glass-forming alloy. Alloys with compositions $(Cu_{48}Zr_{48}Al_4)_{100-x}Nb_x$, with x = 0, 0.25, 0.5, 0.75, and 1, were cast from the melt into cylindrical rods of 3 and 4 mm diameter using a Cu mold, and their microstructures were characterized in detail. 4 mm diameter specimens of all compositions were found to be fully crystalline. The results for the 3 mm diameter specimens, which cooled from the melt at a higher quench rate, were inconclusive. Optical and scanning electron microscopy (SEM) observations show at least 3 phases, including at least 2 crystalline phases within a matrix of undetermined structure. X-ray diffraction measurements show peaks for 2 phases; B2 CuZr and $CuZr_2$. SEM observations of the B2 phase were consistent with the expected spherical shape. Compositional measurements obtained via energy dispersive x-ray spectroscopy (EDS) suggest that the second phase may be $CuZr_2$ with aluminum substituted for copper. The observed microstructures were similar for all compositions, indicating that niobium content does not have a significant effect on the microstructural evolution of the alloy.