

Fracture response of $\text{La}_{61.4}\text{Al}_{15.9}\text{Ni}_{11.35}\text{Cu}_{11.35}$ bulk metallic glass subjected to quasi-static compression loading

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ABSTRACT

Lanthanum based bulk metallic glass (BMG) is one of the BMG which have the excellent glass-forming ability (GFA). In this empirical study, as-received $\text{La}_{61.4}\text{Al}_{15.9}\text{Ni}_{11.35}\text{Cu}_{11.35}$ bulk metallic glasses were subjected to a quasi-static compression test. The results show the maximum modulus Young's of 191 GPa, the compressive force of 590 MPa and the compressive displacement at maximum force of 0.35 mm. The La-based BMG were comparable to the 304 stainless steels in term of the mechanical properties. The La-based BMG fracture response from the quasi-static compression test was documented. The fracture response under compressive loading is vital to understand the La-based BMG for the promising used in lightweight alloy applications. identity.

KEYWORDS

Metallic glass; Amorphous metal; Fracture response; La-based BMG

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