Low temperature failure of Fe76Ni2Si9B13 compacted from amorphous glass powder

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The fracture surface morphology of Fe76Ni2Si9B13 bulk amorphous alloys failed in compression at temperatures from 4.2 to 300 K was investigated. The samples were prepared by the explosive compaction technique from amorphous powder. It has been found that fracture stress decreases with temperature from 300 to 4.2 K. In this temperature range, the brittle failure prevails. The failure propagates across particles and along particle boundaries too. The fracture micromorphology is riverlike pattern with fine dimples.