Fragmentation of Co-Fe-Ta-B soft magnetic amorphous alloy

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The main limitation of high-strength Co-based bulk metallic glasses for their application as structural materials is the large brittleness. Spontaneously emerging cracks in the alloy degrade the magnetic properties. We analyzed the failure characteristics of $Co_{43}Fe_{20}Ta_{5,5}B_{31,5}$ bulk soft magnetic metallic glass deformed in a compression at the room temperature and a low strain rate. Under loading the amorphous structure store high elastic energy. During the failure this energy is released and the alloy breaks into small particles or powder exhibiting a fragmentation mode.

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