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Investigation on the reaction characteristics of a Zr-based metallic glass**Chuan Ting Wang, Yong He, Yuan He, Lei Guo and Zhiping Guo**
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The dynamic fragmentation and reaction behavior of ZrCuNiAl Bulk Metallic Glass (BMG) was investigated by using of a quasi-sealed chamber. A series of impact tests were conducted via launching ZrCuNiAl BMG specimens into the test chamber filled with air or Argon (Ar). The results demonstrated that in air atmosphere the ZrCuNiAl metallic glass experienced chemical reaction after impacting the target, the energy released by such reaction caused significant over-pressure inside the chamber. The reaction was related to the fragmentation and the critical fragment size for reaction was determined by Scanning Electron Microscope (SEM) images. In Ar atmosphere, the fragment distribution of ZrCuNiAl BMG was following a power-like function. A model was established by combining the dynamic fracture distribution with chemical reaction of ZrCuNiAl BMG can predict the quasi-pressure inside the chamber under a certain range of velocities with acceptable accuracy.

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