

Abstract Submitted
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The influence of particle morphology on the dynamic densification of metal powders DANIEL EAKINS, DAVID CHAPMAN, Imperial College London — Powders are well known for their dispersive properties, which derive from the many dissipative processes that occur during densification. While numerous studies have been devoted to understand these processes over a wide range of initial densities, far fewer have considered the influence of particle morphology. In this talk, we will discuss ongoing research to further investigate the role of starting configuration on the dynamic densification of metal powders. Crush-up curves for Cu, Ni, and 316L stainless steel powders of equiaxed, flake, and needle-shaped morphology have been constructed through plate-impact experiments. Results suggest a strong relationship between particle morphology and the stress required to reach full density. We apply a modified contact-point model to relate the differences in crush-up behavior on the basis of physical parameters, such as particle shape and surface area.

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