

CZone for Abaqus: Advanced crush simulation for energy-absorbing structures made from laminated composites

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Crushable structures that absorb energy during impact are used in automobiles, helicopters, aircraft, trains, and other transport vehicles to help protect occupants and cargo from shock and injury during crash. Composite materials hold great potential for providing increased energy absorption in lower-weight crushable structures as compared to conventional heavier metallic designs. A lack of commercial, industry-standard methods to simulate and accurately predict the crushing of these materials during impact has impeded the widespread application of composite materials in crushable structures.

CZone for Abaqus is a new add-on capability to Abaqus/Explicit that provides access to a state-of-the-art methodology for crush simulation. Based on CZone technology from Engenuity Ltd., and targeted toward the design of composite components and assemblies in the Automotive and Aerospace industries, CZone for Abaqus provides for inclusion of material crush behaviour in FEA simulations of composite structures subjected to impact.