



Crashworthiness of Composites – Material Dynamic Properties

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ABSTRACT

The crashworthiness of composites structures has received considerable attention due to the multiple failure mechanisms and rate sensitivity of the material. The CMH17 Crashworthiness Working Group (CWG) is currently conducting a round robin exercise to identify recommendations for simulation of *crush behavior* using numerical tools. Due to the dynamic nature of the crush event, the use of dynamic material properties is imperative. To support the simulation efforts, preliminary material dynamic properties have been generated under in-plane tension compression and shear loading. Due to the lack of standards for dynamic characterization, the properties generated by a single lab/method could be questionable. In the ongoing work, a round robin exercise involving multiple laboratories, to generate the rate sensitive material properties under tension loading has been initiated. The testing will be conducted using high rate servo hydraulic machines. The technical challenges associated with measurement of load signals in the presence of reflected stress waves is being addressed in this study. The details of the test plan and some preliminary results will be presented.