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Ductile damage in Taylor and Rod-on-rod impact experiment GIANLUCA IANNITTI, Techdyn Engineering, ANDREW RUGGIERO, NICOLA BONORA, DOMENICO GENTILE, University of Cassino and Southern Lazio — At equivalent impact velocity, pressure in Taylor and ROR impact experiment is not the same and this reflects in the resulting condition for ductile damage development. In this work, finite element parametric simulation was performed to investigate pressure wave development as a function of material and target work hardening curve. Using the Bonora damage model, the impact velocity necessary for generating ductile damage in high purity copper was assessed. Taylor and ROR experiments were performed at different equivalent impact velocities and metallographic investigation were performed on impacted samples in order to validate damage model predictions. In addition, the effect of temperature on damage development was also investigated performing impact tests at different reference temperatures.

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