

Abstract Submitted
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Examination of Shaped Charge Performance with ECAP Produced Liners ROY CEDER, VITALY LEUS, YURI KHOPTIAR, Rafael Advanced Defense Systems — Shaped charge liner fabrication processes can improve penetration capabilities. For example, whether a liner has been machined, flow-turned or cold pressed can alter the liner material microstructure and in turn influence the jet elongation ability and its penetration capability. In this work we compare the performance of shaped charges with liners machined from copper processed by Equal Channel Angular Pressing (ECAP) and from raw copper. We examine how the ECAP process affects the copper mechanical properties and microstructure, in particular, it is shown that the grain size is substantially decreased. The effect on the shaped charge performance for the two fabrication routes is explored through hydrocode simulations and experimental tests. We show that the ECAP process influences both jet ductility and breakup parameters compared to simple machining from raw material.

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