

Abstract Submitted
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Strain-rate master curves for a PBX and binder DANIEL DRODGE, DAVID WILLIAMSON, STEWART PALMER, University of Cambridge, WILLIAM PROUD, Imperial College, London — Many studies have been performed, using several different experimental techniques, to characterise the mechanical response of Polymer Bonded Explosives (PBX). Here we draw together a range of techniques, namely Dynamic Mechanical Analysis, quasi-static compression, Hopkinson Bar and ultrasonics, to produce a master curve. This was performed with a UK PBX and its binder, and the shift-factors required to produce a consistent master curve were consistent with previous findings, and furthermore implied that a simple linear conversion between strain-rate and frequency is acceptable, the constant of proportionality being 2π . This has been cited before as a consequence of the Cox Merz rule. The benefit of this approach is that a wider range of mechanical testing data can now be employed in code validation.

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