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High strain rate characterisation of a Polymer Bonded Sugar STEPHEN GRANTHAM, CLIVE SIVIOUR, University of Cambridge, PHILLIP CHURCH, PETER GOULD, QinetiQ, WILLIAM PROUD, University of Cambridge — The mechanical properties of a polymer bonded sugar consisting of sugar crystals dispersed in an HTPB binder have been measured in a split Hopkinson pressure bar system at temperatures from +20 down to –100 $^{\circ}$C. These experiments were supported by further tests in an Instron and DMTA apparatus. The behaviour of this material is compared to that of other polymer bonded explosives and their simulants. A major advance in these experiments was the use of X-ray tomography to examine undeformed and deformed specimens, and to qualify and quantify the damage mechanisms in this material.

Clive Siviour
University of Cambridge

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