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On the shock response of Pisum Sativum (a.k.a the Common Pea) JAMES LEIGHS, PAUL HAZELL, GARETH APPLEBY-THOMAS, Cranfield University — The high strain-rate response of biological and organic structures is of interest to numerous fields ranging from the food industry (dynamic pasteurisation) to astrobiology (e.g. the theory of panspermia, which suggests that planets could be 'seeded' with life 'piggy-backing' of interplanetary bodies). Consequently, knowledge of the damage mechanisms and viability of shocked organic material is of paramount importance. In this study a single-stage gas-gun has been employed to subject samples of Pisum Sativum (the Common Pea) to semi-planar shock loading, corresponding to impact pressures of up to c.3 GPa. The experimental approach adopted is discussed along with results from Manganin gauges embedded in the target capsule which show the loading history. Further, the viability of the shock-loaded peas was investigated via attempts at germination. Finally, microscopic examination of the impacted specimens allowed a qualitative assessment of damage mechanisms to be made.

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