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Ramp Wave Generation Using Graded Areal Density Ceramic Flyers and the Plate Impact Technique PETER TAYLOR, AWE, GARETH APPLEBY-THOMAS, MICHAEL GOFF, Cranfield University, PAUL HAZELL, University of New South Wales, JAMES LEIGHS, DAVID WOOD, Cranfield University — Ramping shock waves of the order $\sim$ 2-4 GPa were generated in Kel-F targets through the use of graded areal density ceramic flyers via the gas gun plate impact technique, with a buffer disc employed between the flyer and the target to eliminate penetration by the ceramic flyer. Ramp wave parameters were varied through alteration of the areal density gradient and the thickness of the buffer disc used. Observations of the ramped shock were undertaken through the use of embedded particle velocity gauges and the results compared with hydrocode calculations. The discussion of results includes details of the magnitude, gradient and planarity of the ramp waves produced at various positions in the target material. The flyers were fabricated from alumina ceramic with the ceramic laser stereo-lithography process. In order to characterise the material for modelling purposes a series of shots were carried out to compare the Hugoniot of this material with conventionally sintered material, these results are presented.

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