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Sound velocity measurements in shock compressed Al and Cu ALEXANDER FEDOTOV GEFEN, Soreq NRC, ELI GUDINETSKY, IAEC, ARNON YOSEF-HAI, NRC Negev, BENNY GLAM, MORIS SUDAI, Soreq NRC, SOREQ NRC COLLABORATION, IAEC COLLABORATION, NRC NEGEV COLLABORATION — Sound velocity measurements are useful for mapping the phase diagram of materials and for calibration of their EOS outside the principle Hugoniot. A common method is the overtake method, in which a flyer plate is accelerated towards two or more targets of different thickness. In the present work, experimental results of sound velocity measurements in shock compressed Al and Cu are presented with comparison to data published in literature. The experimental setup was designed and optimized for obtaining high accuracy results. This design took into account the following factors: 2D effects such as edge rarefactions originating in the flyer plate, targets and the windows, EOS accuracy, thickness and diameters tolerances, error correlations and expected experimental uncertainties.

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