

Abstract Submitted
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Shock Hugoniot compression data for several bio-related materials KUNIHITO NAGAYAMA, Kyushu University, YASUHITO MORI, Sasebo Institute of Technology, YASUHIRO MOTEGI¹, Kyushu University, MOTONAO NAKAHARA, Fukuoka Institute of Technology — We have obtained shock Hugoniot compression data for several kinds of bio-related materials up to 1 GPa shock pressure. Materials include pure water, NaCl aqueous solution, gelatine with two different concentrations, and chicken breast meat. Plane shock wave has been induced in these samples by using compressed gas gun. Optical sensitive detection of shock arrival was realized by inclined prism technique developed by our group. Target assembly consists of PMMA driver plate, and each sample was inserted into PMMA-plate container. Most of the experiments have been performed in the symmetric impact condition, i.e., both driver and flyer plate are PMMA. By using impedance mismatching method, shock Hugoniot data has been deduced from the high speed streak camera record. Shock-particle velocity Hugoniot for all the samples are found to summarize as a linear relationship. Furthermore, slope of the relationship is about 2 for all the samples. First precise Hugoniot data for biological materials, in this case, chicken meat is found to be in harmony with the other Hugoniot data for the material whose shock impedance is close to living tissues.

¹Student

Kunihito Nagayama
Kyushu University

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