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**Fragment-size prediction during dynamic fragmentation of melted tin. Experimental investigation and modelling issues** GILLES ROY, LOIC SIGNOR, CEA Valduc, THIBAUT DE RESSEGUIER, LCD, ENSMA Poitiers, France, ANDRE DRAGON, LMPM, ENSMA Poitiers, France, FABRICE LLORCA, CEA Valduc, CEA VALDUC, IS SUR TILLE, FRANCE TEAM, LCD, ENSMA POITIERS, FRANCE TEAM, LMPM, ENSMA POITIERS, FRANCE TEAM — A triangular shock-wave of sufficient intensity propagating in a metal sample may induce melting. When it reaches the free surface, tensile stresses are generated in the liquid state and lead to the creation of an expanding continuum of liquid debris. This phenomenon called micro-spalling consists of a dynamic fragmentation process in the melted material. Relevant data are still few but important for developing robust and physics-based models. Recently, we have reported a qualitative investigation of micro-spall in tin samples submitted to laser shocks [J. Appl. Phys. 101, 013506, 2007]. The present paper contains new experimental results including fragment recovery using a low density PVC-foam and post-test evaluation of the fragment-size distribution using X-ray microtomography. These results are compared to theoretical predictions from hydrocode simulations coupled with a modified formulation of the well-known energy fragmentation model of D.E. Grady [J. Mech. Phys. Sol., 36(3), pp.353-384, 1988].

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