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Mechanical properties and energy absorption characterization of compressive deformation of Tin-Lead metallic foam with open cells

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Abstract content
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Abstract — Metallic foams, have a light structure, having particular mechanical characteristics. Many tests have also shown that they have a great capacity for energy absorption, shock absorption, a significant noise reduction and having many applications.
This work is devoted to the development and characterization of metallic foams with open cells based on tin-lead alloy (with 50 % of tin content). The purpose of this paper is threefold. Our first goal will be to the response of the behavior of metallic foams with different relative densities on uniaxial compression tests. Our second goal is dedicated to evaluate the energy absorption capacities during the uniaxial compression tests on metallic foams. Lastly, this paper focuses at the interpretations of the results and findings of our experiments described in this study which will be the subject to predict the mechanical properties of our open metal foams and compare them with the properties of existing metal foams in literature.

Keywords: Metallic foams, Elaboration process, Open cells, Mechanical properties, Energy absorption, Relative density.

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