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Title: Mechanical properties of Light Expanded Clay Aggregated (LECA) filled tubes

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Abstract: In this study, Light Expanded Clay Aggregated (LECA) foam elements were used as the filler material inside the empty thin-walled circular aluminum tube (ET). The mechanical properties and deformation/collapse mechanisms of the newly produced composite structures were evaluated under quasi-static uniaxial compressive loading conditions. The results indicated that filling the ET with 5 g of LECA particles with diameter of about 4 mm enhanced the energy absorption of the empty aluminum tube by 24%. The tested samples show that the presence of LECA deforms the composite structure in a more controlled manner in comparison to ET with concertina axisymmetric deformation mode. (C) 2018 Elsevier B.V. All rights reserved.

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