

Close

Web of Science
Page 1 (Records 1 -- 1)

Print



Record 1 of 1

Title: Low-cycle fatigue behaviour of ductile closed-cell aluminium alloy foams**Author(s):** Linul, E (Linul, E.); Serban, DA (Serban, D. A.); Marsavina, L (Marsavina, L.); Kovacic, J (Kovacik, J.)**Source:** FATIGUE & FRACTURE OF ENGINEERING MATERIALS & STRUCTURES **Volume:** 40 **Issue:** 4 **Pages:** 597-604 **DOI:** 10.1111/ffe.12535 **Published:** APR 2017**Times Cited in Web of Science Core Collection:** 13**Total Times Cited:** 14**Usage Count (Last 180 days):** 0**Usage Count (Since 2013):** 16**Cited Reference Count:** 34

Abstract: This work investigates the fatigue response of a class of ductile closed-cell aluminium alloy foams, known by their commercial name Alulight M8. In order to determine the yield stress of the used foams, preliminary experimental tests were performed, at room temperature, in monotonic compression on cylindrical specimens of 25mm diameter and 25mm height, with a loading speed of 10 mm/min. Fatigue tests were performed in uniaxial compression on cylindrical specimens (25mmx 25mm) with a stress ratio of $R = 0.1$, at a frequency of 10 Hz. The peak stress was varied from 110 to 135% of the yield stress in compression. Tested specimens were cut from the same cylindrical bar, and the density of the investigated material was 500 kg/m³ +/- 10%, or a total of 18 specimens being investigated. With the gathered experimental data, S-N curve was generated, and the effect of cellular structure (e.g. structure irregularity- the number and the size of cells) being investigated and discussed.

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[Serban, D. A.] Politeh Univ Timisoara, Res Inst Renewable Energy, Timisoara 300777, Romania.

[Kovacik, J.] Slovak Acad Sci, Inst Mat Machine Mech, Bratislava 84513, Slovakia.

Reprint Address: Marsavina, L (reprint author), Politeh Univ Timisoara, Dept Mech & Strength Mat, Timisoara 300222, Romania.**E-mail Addresses:** msvina@mec.upt.ro**Author Identifiers:**

Author	ResearcherID Number	ORCID Number
Kovacik, Jaroslav	K-2556-2013	0000-0002-6970-0406
Serban, Dan Andrei		0000-0002-1218-1756
LINUL, Emanoil		0000-0001-9090-8917

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Close

Web of Science
Page 1 (Records 1 -- 1)

Print



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