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Flexural behavior of open-cell aluminum foam sandwich under three-point bending (Article)

Al Hazza, M.H.F. [✉](#), Ibrahim, N.A.B., Adesta, E.Y.T., Endut, N.A. [✉](#), Ali, M.Y. [🔍](#)

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Abstract

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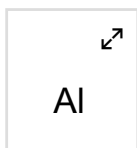
Aluminum foam sandwich (AFS) panels are one of an advanced material that has various advantages such as lightweight, excellent stiffness to weight ratio and high-energy absorption. Due to their advantages, many researchers' shows an interest in aluminum foam material for expanding the use of foam structure. However, there is still a gap need to be filling in order to develop reliable data on mechanical behavior of AFS with different parameters and analysis method approach. There are two types of aluminum foam that is open-cell and closed-cell foam. Few researchers were focusing on open-cell aluminum foam. Moreover, open-cell metal foam had some advantages compared to closed-cell due to the cost and weight matters. Thus, this research is focusing on aluminum foam sandwich using open-cell aluminum foam core with grade 6101 attached to aluminum sheets skin tested under three point bending. The effect Skin to core ratio investigated on AFS specimens analyzed by constructing load-displacement curves and observing the failure modes of AFS. Design of experiment of three levels skin sheet thickness (0.2mm, 0.4mm, and 0.6mm) and two levels core thickness (3.2mm and 6.35mm), a full factorial of six runs were performed with three time repetition. The results show that when skin to core ratio increase, force that AFS panels can withstand also increase with increasing core thickness © BEIESP.

SciVal Topic Prominence [①](#)

Topic: Foams | Energy absorption | Aluminium foam

Prominence percentile: 98.126 [①](#)Chemistry database information [①](#)

Substances



Author keywords

Aluminum foam sandwich

Flexural behavior

Open-Cell

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
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