A study of tensile test on open-cell aluminum foam sandwich

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Abstract

Aluminum foam sandwich (AFS) panels are one of the growing materials in the various industries because of its lightweight behavior. AFS also known for having 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 fill in order to develop reliable data on mechanical behavior of AFS with different parameters and analysis method approach. Least of researcher focusing on open-cell aluminum foam and statistical analysis. Thus, this research conducted by using open-cell aluminum foam core grade 6101 with aluminum sheets skin tested under tension. The data is analyzed using full factorial in JMP statistical analysis software (version 11). ANOVA result show a significant value of the model which less than 0.500. While scatter diagram and 3D plot surface profiler found that skins thickness gives a significant impact to stress/strain value compared to core thickness.

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