The Various Laminations Behavior Analysis of Heat Transfer for Composite Sandwich Structures

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ABSTRACT

The study is to analysis of heat transfer for composite sandwich structures and to establish forecast system. The behaviors of thermal conductivity of porous structures by series experiments and computer aided engineering (CAE) simulation with random processes, and the effective coefficient of thermal conductivity will also be calculated of the porosity.

The different porosities of material of thermal conductivity will be study by a series of experiments. EVA and AC foaming agent were used in this study. The commercial software of finite element methods – ANSYS was adopted to simulate heat transition of the porous structures. In order to create similar CAE models of foam, the random generation was applied to build the unit cell including hollow part and solid part. The CAE models include 2D models. The CAE results offer more precious than Carson’s Effective Medium Theory (EMT). Finally, CAE simulations and numerical analysis were compared with heat transfer experiments and the result was agreed.

Keywords : Various Lamination、Computer Aided Engineering、Effective Analysis、Numerical Analysis

Table of Contents

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