

# Bio-based Foam Composites as Sound Absorbent Materials

ANIKA ZAFIAH M. Rus

Sustainable Polymer Engineering, Advanced Manufacturing and Material Center  
(SPEN-AMMC), Faculty of Mechanical and Manufacturing Engineering,  
Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor,  
Malaysia.

## Abstract

The interest of acoustics properties of bio-based polymer foam composites as sound absorption materials has been developed and analysed. The beginning stage is started by converting waste cooking oil into bio-based monomer, added with waste fillers and crosslink with hardener to solidify and namely as bio-based polymer foam composites. The measurement from sound absorption coefficient ( $\alpha$ ) at different frequency range revealed that the renewable polymer foam added with 10.0 % fillers shows highest  $\alpha$  of 0.963. This is contributing to excellent acoustic property with suitable in the application of car dashboards, door panels, cushion and etc.

**Key words:** bio-based polymer, monomer, sound absorption, frequency, acoustic.