**Acoustical Materials: Solving the Challenge of Vehicle Noise**

Pranab Saha

What is acoustics? What is noise? How is sound measured? How can the vehicle noise be reduced using sound package treatments? Pranab Saha answers these and more in *Acoustical Materials*. Acoustics is the science of sound, including its generation, propagation, and effect. Although the propulsion sources of internal combustion engine (ICE) vehicles and electric motor-powered vehicles (EV) are different and therefore their propulsion noises are different, both types of vehicles have shared noise concerns:

- Tire and road noise
- Wind noise

Vehicle noise and vibration issues have been there almost from the inception of vehicle manufacturing. The noise problem in a vehicle is very severe and is difficult to solve only by modifying the sources of noise and vibration. Sound package treatments address the noise and vibration issues along the path to reduce in-cabin noise. In *Acoustical Materials*, readers will grasp the science of reducing sound and vibration using sound absorbers, sound barriers, and vibration dampers.

Sound provides information on the proper operation of the vehicle, but if unchecked, can detract from the consumer experience within the vehicle and create noise pollution outside the vehicle. *Acoustical Materials* provides essential information on the basics of sound, vehicle noise source, how these are measured, how vehicle owners perceive sound, and ultimately, how to solve noise problems in vehicles using sound package materials.

**RELATED RESOURCES:**

- **SAE International Journal of Vehicle Dynamics, Stability, and NVH**
  - Editor-in-Chief: Peijun Xu, Ph.D., Ebco, Inc., USA
- **Noise, Vibration and Harshness of Electric and Hybrid Vehicles**
  - Authors: Lijun Zhang, Dejian Meng, Gang Chen
  - Product Code: R-481

Cover photo courtesy of General Motors.