

# **CHALLENGES AND UNEXPECTED BENEFITS OF DEVELOPING AN ACOUSTIC BARRIER FILM**

Greg Simon, Aearo Technologies LLC, a 3M Company

Like so many components of aircraft, acoustic barriers are an engineering challenge of balancing many competing desirable or undesirable traits. These limp mass barriers play an important role in the noise control system for aircraft, especially for business jets whose owners and operators who demand premium sound quality in the cabin. The acoustic system and each of its components must not only function to reduce the transmitted noise into the cabin, but must also meet the strict fire safety standards of this industry. For decades, it has been possible to achieve these goals in the limp mass barrier component by a purposeful combination of PVC resins, phthalate plasticizers and other fire retardant additives. However, these raw materials are becoming increasingly scrutinized as potential hazards to both humans and the environment, some classes of which have recently been placed on the REACH watch list as substances of very high concern (SVHC). This paper presents a new class of barrier films that meet these prescriptive fire standards without the use of these undesirable raw materials.