

Audio advances deserve **advanced housing materials.**

Eastman specialty plastic technology and expertise help you make the sound choice for audio performance.

As the market continues to demand the latest audio technology—from home theaters to streaming audio to smart speakers—users also demand higher sound quality. Eastman specialty plastics help preserve sound quality by improving acoustic performance. Eastman Tritan™ copolyester and Eastman Trēva™ engineering bioplastics (cellulosics) also provide great aesthetics and durability to enhance user experience.

- Enhance audio performance in devices.
 - Reduce resonance of cabinets/enclosures that can contribute to a listener's audio experience.
 - Improve active noise cancellation.
 - Prevent feedback and feed-forward systems from going unstable by reducing resonance and interference contributed by the housing.
- Reduce load on digital signal processing (DSP).
 - Reduce computational load by removing resonances, leading to longer battery life.
 - Reduce computing power of PCB to mitigate cost.
 - Increase efficiency of speaker/microphone systems by reducing echo.
 - Allow higher SPL of speaker systems incorporating microphones by reducing echo and reverberation.



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Material selection can improve **acoustic performance**.

Figure 1. Polycarbonate

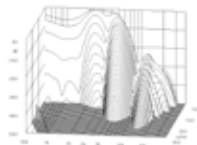


Figure 2. Copolyester

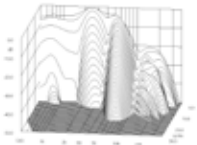
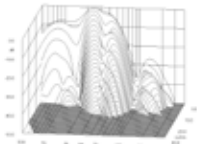


Figure 3. Cellulosic



Eastman is a leader in testing for vibration damping in appliances and other industries. It applied this expertise to evaluate the impact of housing material on acoustic performance in four test areas.

1. Vibration damping tests using SAE J3130 methodology showed Eastman polymers have the potential for superior performance in audio applications requiring reduced resonance, less distortion, and improved acoustical performance.
2. Waterfall plots* of three popular polymers in a fully molded in-ear monitor (IEM) showed that Eastman specialty plastics (copolyester and cellulose) demonstrated superior damping compared with the incumbent polycarbonate (PC).
3. The same molded IEMs were evaluated for total harmonic distortion. There was measurable improvement for both Eastman polymers, with the cellulose providing superior performance.
4. The three IEMs were evaluated in a blind test with an expert panel of audio engineers, designers, and consumers. Their responses supported the results shown in CSD waterfall plots.

For test methods, result details, and listener verbatims, visit the Eastman electronics website. www.eastman.com/Consumer-Electronics

*Molded IEMs (Periodic Audio Be [beryllium] technology) were tested in collaboration with DW Designs and Periodic Audio.