

Factors that differentiate Etymotic Research's hearing protection from other earplugs

Function/Features

Etymotic makes high-fidelity earplugs for use by anyone who needs to hear clearly in noise. This applies to musicians and others who need to perform their job, enjoy a concert, or participate in recreational and sporting activities where hearing protection is needed, but sound quality cannot be compromised. Etymotic ETYPlugs® earplugs allow people to hear themselves and others clearly.

Understanding speech in a noisy environment is important to worker safety. Many products reduce sound, but it is important to note that many earplugs either muffle sound and/or provide too much attenuation (noise reduction), which can compromise sound quality-- or worse, worker safety.

Musicians Earplugs™, the first-of-a kind custom product introduced in 1988, remain the worldwide gold standard of hearing protection for musicians and anyone who needs to hear clearly in noise. A lower-cost, more accessible non-custom earplug (the ER-20) was introduced by Etymotic two years later, and to date still has the flattest frequency response of any ready-fit earplug. This has been verified by auditory researchers and respected independent labs many times.

The science behind both Musicians Earplugs and ER-20 (ETYPlugs) earplugs has been described in acoustics journals and articles. Basically, both earplugs replicate the natural response of the ear, and reduce sound evenly across frequencies to preserve the intelligibility of speech and the timbre of music while providing protection from the cumulative effects of noise exposure over a lifetime. Sound heard through the earplugs is clear, but safer.

Additional Information

Musicians Earplugs filters have a diaphragm that functions as an acoustic compliance, while the volume of air in the sound bore of the custom earmold acts as an acoustic mass. The combination of the two produces a resonance at approximately 2700 Hz (as in the normal ear) which results in a smooth flat attenuation.

ER-20 High-Fidelity Earplugs (ETYPlugs®) reduce noise evenly by using a tuned resonator and acoustic resistor to give essentially the same sound reduction at all frequencies, which preserves the fidelity of the original sound.

Etymotic produced the first flat-attenuation earplug following its founder's participation in a noise study commissioned by the Chicago Symphony Orchestra. Findings in that study revealed that musicians need to hear their own instruments and the other musicians clearly, but were at risk for noise-induced hearing loss from repeated exposure to unsafe sound levels.

Summary

The key feature of ETYPlugs earplugs is that they allow the user to hear clearly and be protected at the same time.

These earplugs prevent ear overload distortion making it possible to distinguish voices and music *better* than with no ear protection at all. These earplugs provide 20 dB of attenuation.

The appropriateness of using these earplugs in very high noise environments should be determined by safety personnel.