Protective Coatings for Hearing Aids – Nano Technology

A hearing aid lives in an environment that's downright unfriendly to its electronic components – the human ear! Modern hearing aids contain tiny micro-chips and miniature circuitry. Ear wax, skin oils, salt, moisture, and changes in temperature can have detrimental effects on these delicatehearing aid parts, potentially influencing the hearing aid's performance.

The search for methods and materials to protect hearing aids started with their invention. Until the recent emergence of nano technology, a more traditional approach was used to safeguard hearing aids from environmental exposure. Hearing aid manufacturers used various materials to coat the spots where damage occurred in hearing aids, one spot at a time. Some areas required certain coatings, and other areas – such as metallic contacts for battery springs and audio inputs – required different protective materials. So, while the process was adequate, it was neither efficient nor resoundingly successful.

Enter, nano coating.

"Nano" is derived from the Greek word for "dwarf". It's used in conjunction with many of today's technologies that utilize substances of a molecular size – usually 100 nanometers or smaller. The nano coating used with hearing aids is a microscopic, nanometer-thick polymer layer that protects every part of the device. It enters all cavities and bonds with all surfaces, inside and outside. Compared to the prior method of coating, nano coating covers areas of hearing aids that were not "reachable" before, offering full protection as opposed to localized protection.

How is nano coating applied to hearing aids?

To nano coat hearing aids, a vacuum process is used which allows the protective material to chemically bond with every internal and external surface of the hearing aid. The bonding process creates a polymer film. Because the polymer film binds to the surfaces on a molecular level, it literally becomes an inseparable part of the surfaces.

Amazingly, the thickness of the nano protective layer used in the most advanced hearing aids is 60-80 nanometers, or 1/1000 the thickness of a human hair!

What does nano coating do for hearing aids?

When internal and external components in a hearing aid are protected with nano coating, moisture beads off and particulates can be easily wiped away. This dramatically reduces maintenance, and extends hearing aid life. And, easy maintenance, plus improved performance and reliability, adds up to increased patient satisfaction for people with hearing loss.