

Article

Hearing Aid Repair & Modification Using UV Materials

Part One: Shell Build-Up

I had the privilege of visiting a small hearing aid manufacturer in Maine recently, where I got to meet some very talented people. I had been invited there by the company manager to show some of our equipment, and to talk about using UV technology in their repair lab. As it turned out it was a very busy day for them, and being a small company they didn't have a lot of time to spend with me. However, it was a great time to do some "looking-on", so I did.

In the 90 minutes I spent with the company, several customers came in for varying reasons, but two in particular had the same complaint. Their hearing aids were fitting a bit loose and both were feeding back. On both occasions, the technician took the hearing aids back to the lab and using a small brush applied some clear fingernail polish to the hearing aid shell. After waiting 10 minutes for the polish to dry the hearing aids were delivered back to the customers who were thrilled to get their instruments back so quickly. On the second occasion, the technician had to repeat the procedure a second time, but the customer was still happy.

What Am I Saying?

Now you are probably thinking, "Hey, I thought you were going to talk about using UV to build up the shell?" Well, I couldn't resist the chance to demonstrate how happy these customers were to have their hearing aids repaired so quickly. Now I am going to tell you how using UV for the same process would have made them, and the technician, even happier.

Its All About Saving Time

Remember how the technician had to apply the polish, and then wait 10 minutes for it to dry? And how he had to do this 3 times? (Twice for the second customer). That's 30 minutes of his (and his customers) time. What if he could have achieved this in less than 1 minute each? And what if this same process happens over and over again, how much time will that save?

Here's how:

How to Apply Hard Finish UV Lacquer

UV hard-finish Lacquers, such as Fotoplast/Lacquer, is supplied in a bottle with an application brush. It has the viscosity of something a little thicker than water so it is very easy to work with. It can be used on any type of hard shell, is completely hypoallergenic, and can be buffed down if too thick. To apply, simply brush on the shell in the desired location for build-up, and hold next to a UV light source. A 2 lamp fluorescent model such as the Dual-Lite or UV9W-2 works excellent for this. Spot cure guns can also be used, and though it is overkill for this procedure will cure very rapidly. The lacquer will start to harden immediately after exposure, and depending on the thickness of the coating and how close it is to the lamps, will be cured in under 60 seconds. The lacquer leaves a shiny coat and usually requires no buffing. The two things you need to keep away from during application are the faceplate and any trimpots that may be mounted in the shell. Any materials applied to these areas will create a cosmetic problem, as well as freeze any trimpots in their current locations. Like anything you apply, be careful.

Now, you don't need to hold the unit between your fingers until it is cured. Once the outside layer has hardened (which is just a few seconds), just place the unit on the tray under the lamps for the remainder of the cure time. If you really want some help holding the unit, the Lite-Isserie Turning Unit can hold the hearing aid under the lamps and rotate it so it cures evenly. And you don't have to worry about leaving the unit under the lamps for too long. You can't over-cure this type of material, so no harm done.

How to Apply Soft Coat UV Lacquer

Sometimes you need a little more than a hard coating can give you. Sealing or slippage problems may require a soft coat which will be more likely to mesh with the ear canal. Fotosoft/Lacquer is an excellent material for this type of application. It also is supplied in a bottle with application brush and has a thicker

consistency than the hard lacquer. To apply, simply brush on, trying to form a thin seal around the circumference of the canal. And just like anything else you may apply, try not to get any of this on the faceplate or in any trimpots that may be mounted in the shell.

Where the soft coating is a thicker material, it is going to take longer to cure. Depending on your equipment, the thickness of the coating, and how close the hearing aid is to the lamps, it could take 5 minutes or more to completely cure. And to make sure it cures evenly you should use a Lite-Issreie Turning Unit to rotate the hearing aid under the lamps.

Some soft coat materials will produce a sticky residue on the surface of the material after it has cured. And no matter how long you leave the unit under the lamps this tacky residue is still present. This is called the “smear layer” and is due to oxidation which happens during the cure process. This residue can easily be removed with an alcohol wipe or Tech-Care Wipe. It is typically present when curing thicker materials.

What's Next?

Part Two will look into repairing cracks and holes in the shell.

About the Author

Chris Perkins is the owner of Lightning Enterprises, and facilitates the Lightning Enterprises newsletter. He has worked in the hearing aid industry since 1991 in hearing aid manufacturing and product development, as well as equipment and process consulting.