The question I have been asked most often over the 10 years I have been in the refining business is, “How do I know I’m getting the most money for my scrap?” The honest answer is that you don’t. A great deal of trust is involved, which is why it is so important to feel comfortable with the refiner you choose.

Trying to estimate the value of the crowns, bridges, inlays, and onlays you have saved can be very difficult. Not every unit you have removed over the years is one that you put in yourself, so how can you be certain what type of alloy it is? And if you can’t, how can sales reps who want to pay you in cash, on the spot, be certain? The answer is that they can’t. Hopefully, the allure of cash in hand won’t be so enticing when you consider that the overwhelming majority of dentists who use this “service” are receiving only 50% to 65% of the inherent value of their scrap. Keep this in mind, too—your laboratory would never turn in its scrap in this manner.

Something else we hear quite often is, “I don’t accumulate enough for it to be worthwhile.” I would bet otherwise. With precious metal values at all-time highs (and the only safe financial bet right now), you don’t need a lot of scrap to realize a significant return, but to protect yourself, you will want to work with an established company that is transparent throughout the refining process.

You will also want to work with someone who uses state-of-the-art smelting and assaying techniques to maximize your financial return. The more you know about the refining process, the better able you will be to choose the right refiner.

**Step 1** is proper scrap collecting in your office. Surprisingly, a lot of offices throw away PFM crowns and bridges. A number of “white” alloys have a high gold and palladium content. A simple rule of thumb is this: If you can cut right through the material, it is a precious or semiprecious alloy; if you can’t, it probably isn’t. If you don’t want to take the time to analyze the metals in that way, just save them all. An assay will determine the makeup of the alloy with absolute certainty. Therefore, save all crowns, bridges, inlays, and onlays, even if they are reduced to little bits of metal—it adds up over time.

Here’s another rule of thumb: If a partial looks like gold, odds are it is; if not, it is probably a non-precious alloy and can simply be disposed of properly. Some refiners will pay you a small amount...

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**Eight Steps All Dentists Need to Know About Refining Their Scrap**

**Figure 1.** Pouring the molten metal into a mold.
for this type of scrap, so ask before you throw it out (but don’t expect much).

**Step 2** is finding the refiner that is best for you. You may be hesitant about sending your scrap through the mail, but in my 10 years of experience, I cannot remember an instance when a package didn’t arrive safely. Keep in mind, also, that just because a sales rep will pick up your scrap in person, that doesn’t mean the smelting facility is local, and it may have to be shipped off anyway.

**Step 3** is preparing the scrap for smelting after it has first been weighed and assigned an internal tracking number. Gold and PFM scrap can be smelted together, so there is no need to keep them separate. Copper is commonly used to add volume to a small amount of scrap and/or to help alloy the different metals in the scrap together so a homogeneous bar can be poured. Borax and soda ash are added to capture impurities (such as porcelain, tooth structures, and cement) and separate them from the metal, producing the “slag.”

**Step 4** is gathering a sample that is representative of the melt, which is essential for accurate determination of the elemental breakdown. Two methods are used. In the first, a sample of the molten metal is pulled into a vacuum tube and left to harden. In the second, a sample is drilled out of the bar once it has hardened. Both techniques are accurate as long as the sample is homogeneous.

**Step 5** is pouring the molten metal into a mold. The slag should easily separate from the metal after it has cooled and hardened. There should be no metal in the slag; checking for even small amounts is important. If the bar is free of slag, it is ready to be weighed.

**Step 6** is obtaining an accurate assay. The method most commonly used is inductively coupled plasma emission spectroscopy. This process provides the exact percentage of each element present in a given sample, for example, 25% gold, 25% palladium, 5% platinum, 10% silver, 30% copper, 1% indium, 2% nickel, and 2% trace amounts of other elements.

Once the percentages of the elements have been determined, they can be correlated with the weight of the bar. If the percentages mentioned above had been found in a bar weighing 10 troy ounces (ozt), there would be 2.5 ozt of gold, 2.5 ozt of palladium, 0.5 ozt of platinum, and 1.0 ozt of silver.

**Step 7** is determining the value of the bar as a whole, based on the current market value of the quantities of each precious metal present. The “London fix” is generally used. Ask up front what market price the refiner uses. The most common options are to lock in the price on a specific day or to use the average over the time it takes to process your scrap.

**Step 8** is crediting you for the value of the precious metals recovered. The most common method is issuance of a check. However, an increasingly common trend is to send back gold, silver, or platinum bullion.

I hope this has given you a better understanding of the process, dispelling some of the uncertainty you may be feeling. One bit of advice I often give is this: Look for someone you feel comfortable with, as you would when choosing an auto mechanic. Hopefully, the refiner you select will earn your trust over time, so that you can confidently feel that you are getting the best return.

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