Recycling of Metals for Crematories: Important Questions and Straightforward Answers

By **Kevin McKay,** Manager of Medical and Technical Sales, Mid-States Recycling & Refining, a Selected Preferred Partner

The funeral home and crematory professions are ones that require a great deal of sensitivity, as you know, and the issue of the proper disposal of metal bio-waste is no exception. Being certain that post-cremation metals are handled properly has become an important issue, most notably in the past few years. I would like to offer some insight into the recycling process and at the same time answer some of the questions that I most commonly hear from you, the crematory operator.

Why bother with recycling at all? As a crematory operator, you really only have two choices. Throw it away or recycle it. As a concerned citizen, you doubtless realize that fewer precious metals need to be mined if already existing metals are recycled and are available for reuse in the marketplace. As a businessperson, you also realize that some of these materials have a high intrinsic value (gold was trading near $1,285 per troy ounce and palladium was trading near $1,350 per troy ounce at the time of this writing). The issue for you is whether it is convenient and expedient for you to include recycling in your protocol.

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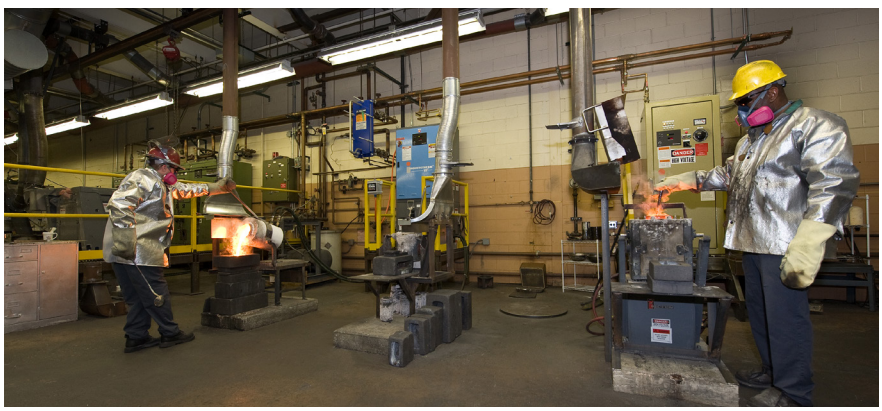
During the last two decades, our society has become increasingly more educated about the negative environmental impact of putting heavy metals into the ground by way of landfills and garbage dumps. Doing so not only contaminates the soil and groundwater, but also is in direct violation of CFR 40 (Code of Federal Regulations). Recycling has become less of an option and more of an expectation.

When referring to recycling, the term *repurpose* has become mainstream recently because it accurately describes the end result. The sectors that benefit the most from repurposing post-cremation metals are aerospace, military, automotive, medical and technology. From medical implants to circuit boards, all have a big impact on our day-to-day lives.



What are my choices regarding compensation? The choice of how to handle compensation is entirely yours. If you are not interested in compensation for the metal, you always can donate it. Many crematories like to actually publicize how much they were able to contribute to a local or national charity (the Selected Educational Trust comes to mind).

When the families are informed that it really isn't practical for you to incorporate the retrieval of dental prosthetics, for instance, into your protocol, and that the best option for you is to work directly with a trade refiner to properly recycle the metal, they are usually sympathetic to this approach.

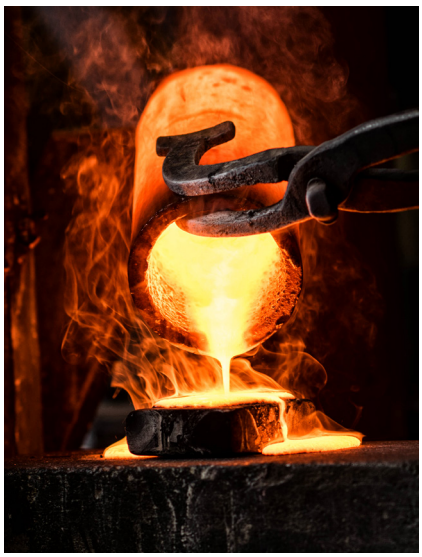
What are the relative values of the different post-cremation metals? When I refer to post-cremation metals, I am grouping together everything you might encounter including, but not limited to, dental prosthetics, joint replacements (most commonly hip and knee), back braces, and pacemakers. The major difference in these materials is value, which is predominantly contained in the dental material.

The materials in dental prosthetics range from high noble alloys (containing more than 60% gold/platinum group metals or PGMs) to noble alloys (containing more than 25% gold/

PGMs) to base-metal alloys (containing less than 25% gold/PGMs) to alloys that are non-precious altogether. There are literally hundreds of different dental alloys on the market. In contrast, the jewelry industry uses only a handful of standards (10, 14, 18, 22, and 24 karats) that are stamped on pieces of jewelry to indicate precise mixtures of gold, copper, zinc, and silver. Dental prosthetics are not marked in this way.

What about the value of the metals in implants? Virtually all of the metals you will encounter (precious and non-precious) will be classified as "native metals". These are any metal that is found in its metallic form either as pure or as an alloy, in nature. The hip and knee implants that you are likely encountering with increased frequency are made of titanium or chrome-cobalt alloys. These are classified as high-temperature or refractory metals because they are extraordinarily resistant to heat and wear.

Because they are non-precious they have little monetary value and are significantly more cumbersome to deal with than dental material. These metals are widely used in industry as mentioned before so there is still a need to properly recycle them.



Because these low-grade implant metals melt at a much higher temperature than precious metals they should not be smelted together if it can be avoided. Additionally, these metals are often highly resistant to homogeneously alloying with each other.

The simplest way to avoid commingling these metals is to separate them by hand when putting cremated remains in your processor or by using a separating processor with a screen ahead of the funnel that catches small pieces. Separating out the dental material from the less valuable material in this way gives you a better handle on how much high-value material you are turning in for recycling.

Is it possible for anyone to estimate how much value there is in my dental material? Trying to assess the value of dental material a crematory can generate simply on the basis of how many cremations are performed will yield only a very rough guide. Whatever you may have been told, it is not just difficult, it is impossible to determine the value of dental material by simply looking at it.

As mentioned previously, there are hundreds of different dental alloys, and the only way to accurately evaluate the precious metal content of a collection of dental prosthetics is by putting it through a smelting and assaying process. Smelting the metal into a homogeneous bar allows proper sampling. Once there is a sample that is representative of the whole bar, that sample can be assayed (analyzed) to determine the precise elemental content. If any of the steps in this process is missed or done improperly, the results will necessarily be inaccurate.

Bearing all these facts in mind, what criteria should I use when choosing a recycling company? I think there are three essential criteria to provide maximal peace of mind in a process that relies so heavily on trust. First, choose a recycler that has smelting and in-house assaying capabilities. Any so-called recycler who relies on ballpark estimates rather than solid scientific techniques is inherently troubling.

Second, choose a recycler that demonstrates complete transparency. Any recycler should be more than willing to allow you to visit the facility at any time, to witness the process, provide a sample from your melt for further verification and to answer any questions you might have.

You deserve the level of confidence that approach will provide. We work with numerous Selected firms that can attest to their experience with our process. Lastly, term agreements and/or *free* equipment are a red flag. If a company is willing to give you free equipment in return for your metal, it seems to muddle an otherwise simple transaction. It's also probably too good to be true. I have long subscribed to the theory that you should want to do business with a company, not feel obligated to.

I hope this has shed some light on the process of recycling and has answered some of the questions you may have had. ▲