




ENHANCE YOUR REFINING RETURNS

WHAT YOU WILL LEARN:

HOW TO GET THE MOST OUT OF LABORATORY SCRAP

- Why is a disciplined scrap collection process so important for inventory control?
- What is the Scrap-to-Alloy ratio, and why is it an important indicator of alloy use?
- How to implement simple and effective material control.
- Tips to optimize scrap collection, security, and metal use.



In order to minimize material costs and maximize gross margin, you must handle your scrap meticulously and have it refined with precision.

WASTE NOT, WANT NOT:

For every troy ounce of precious metal that your lab puts out in finished product, you are likely buying on average 1.15 to 1.30 troy ounces of alloy upfront. Add to that the cost of having your scrap refined, and two things quickly become clear: first, you must handle your scrap meticulously, and secondly, you must have it accurately refined.

PROFIT MOTIVE:

To understand the lab's true gross manufacturing profit margin, you should be enforcing a disciplined scrap collection process as part of an effective inventory control system. Otherwise you will be forced to guess at your process losses and leave elements of material control in the hands of your refiner, employees, and vendors. Besides yielding a more accurate account of lab costs, a disciplined scrap collection process also allows you to properly monitor your refining settlements to ensure you are getting a legitimate return.

Inventory controls are designed to track all physical additions (i.e. dental alloy purchases), movements to and from metal fabrication activities (i.e. casting, finishing and polishing) and depletion of precious metals (i.e. shipments of final product and scrap containing precious metals) during a defined period of time. They must be accurate, so that the perpetual documented inventory results predict the outcome of the physical inventory, including your refining outcomes. If done correctly, a clear relationship will emerge between scrap and alloy use, such that it can be critiqued at anytime.

Strive to maintain the lowest "Scrap-to-Alloy" ratio possible. We typically see ratios between 15% and 30%, which is consistent with studies on fabrication loss⁽¹⁾ and reflects the average range of scrap generation. Ratios hovering above 25% indicate the lab is not operating at peak efficiency, (i.e. poor wax conversion and casting techniques, sub-optimal button recycling, over-waxing, and excessive polishing), and ratios below 10% suggest that the lab is employing sub-optimal collection techniques, operating malfunctioning collection equipment and/or experiencing pilferage.

TEN EASY STEPS:

FOLLOW THESE TEN STEPS TO ACHIEVE EFFECTIVE SCRAP MATERIAL CONTROL:

1. Tightly control metal on the shop floor by weighing work before and after it is issued to casters, metal finishers and other technicians.
2. Train metal finishers to clean up their work surfaces and the floor around their work station nightly, and to subsequently turn in all waste. They should vacuum their aprons, clothing, and shoes with a portable vacuum.
3. Establish well-defined scrap categories for collection, such as metallic, semi-metallic and low-grade combustibles.
4. Record the weight of scrap after each collection and secure properly.
5. Use scrap containers provided by your refiner; they are usually provided free.

6. Before shipping, label each scrap lot with your name, address, phone and instructions.
7. Request that your refiner weigh each category of scrap within the shipment separately. This allows you to compare settlement results over time, based on the proportionate composition of each lot.
8. Keep detailed historical records of your refining settlements and obtain well-documented reports from your refiner showing the weights received, the after-process weights, the assays and the metal paid after refining fees.
9. If possible, refine in regular intervals that coincide with the scheduling of the lab's physical inventory, i.e. end of quarter, semi-annually or at year end. While there is a temptation to speculate on markets, the failure to match the lab's refining result to the lab's physical book inventory poses a significant risk in terms of accounting for physical metal losses.
10. Use this information to track your "Scrap-to-Alloy" ratio, and take corrective action when the ratio falls well below 10% or above 25%. Make the appropriate adjusting entries to your book inventory to reflect overall process losses.

HOUSEKEEPING:

Inadequate collection is one of the primary reasons for unaccounted metal losses. Metal grindings and filings are dense, so they tend to stay on work surfaces and trays rather than being pulled easily into the collection system.


Grindings and filings should be collected and weighed after every shift, or once a day. Along with vacuuming, also consider installing natural-backed carpet beneath metal finishing work stations, since it can be refined, as well.

OVER-WAXING AND INEFFECTIVE BUTTON RECYCLING:

Another reason to keep careful track of finished copings and multiple unit frameworks is to monitor the tendency to "over-wax." Failure to optimize wax conversion practices and poor discipline can lead to suboptimal metal alloy use and higher scrap generation.

Once the alloy is cast, subsequent metal finishing has its own high price. First, additional labor is required to cut back to desired thicknesses. Next, not only is there added refining cost, but you also have to subsequently write-off your lost fabrication premium. This is the value added over intrinsic metal that you paid for in your alloy in the first place. Lastly, once scrap is in the form of comingled metal grindings, generally it cannot be recycled back into new casting campaigns, as would be the case for clean buttons or sprues. The best return on your investment is to optimally wax and prudently recycle clean buttons and sprues and produce the least amount of scrap possible.

To understand your true gross manufacturing profit margin, you should be enforcing a disciplined scrap collection process as part of an effective inventory control system.



The key to getting the most from your dental alloy, as well as from the scrap, starts long before any refiner even sees your material or begins to process it.

SECURITY:

Leaving unsecured scrap in the lab or failing to secure access to the centralized vacuum system can expose your material to theft. Keeping track of polishings and vacuum filter accumulations from suction systems is more difficult than identifying casting and metal finishing scrap streams, but it is an important part of the material control process. Be sure to apply the same discipline in these areas as with solid scrap collection. Equipment should be routinely checked to optimize operation, and filter and vacuum bag replacements should be part of a regular annual maintenance inspection routine, with the materials then being secured under lock and key.

NON-PRECIOUS CONTAMINATION:

Unless contaminated, investment breakout and aluminum oxide rarely have enough viable precious metals to offset their associated refining charges. However, these still should be carefully examined and randomly sampled by you or your refiner before you discard either item. When in doubt, carefully hand sort and separate any metal-free refractory from metal-bearing refractory. It makes no sense to comingle all-ceramic breakout with breakout derived from PFM, PTM™ and full castings. This little bit of extra effort will save you considerable money by not sending extremely low value weight to the refinery, where it will not only incur processing fees, but will also down-grade the results on the precious metal component.

THE BOTTOM LINE:

You could have the best refining relationship and still not optimize your scrap recovery due to sub-optimal collection, shop discipline and housekeeping practices. The scrap process control described in this article is the key to getting the most from your dental alloy, as well as from the scrap. This starts long before any refiner ever sees your material or begins processing it.

FOOTNOTE:

⁽¹⁾ Determination of gold alloy loss during the production of cast dental restorations

Fitzpatrick, Brockhurst, Gullotta: University of Queensland, Australian Dental Association (1998)

© Copyright 2009, Jensen Dental. All rights reserved.

800.243.2000

www.jensendental.com



73052

