

REFINING SUCCESS STORY I

HOW SCRAP TYPES AND METALLIC CHARACTERISTICS DRIVE A LAB'S REFINING OUTCOME

BACKGROUND:

A lab, which routinely purchased over 1,000 ounces of precious metal alloy per year, previously refined with a local area scrap collector and received hand-written refining statements. There was no scrap collection strategy per se, and shipping frequency varied along with the refining results. They turned to Jensen Dental for some constructive recommendations.

FINDINGS:

After reviewing a test scrap lot and their potential annual scrap volume, Jensen's immediate recommendations included moving the lab to quarterly scrap releases and creating three distinct scrap categories: solids, vacuum bags with grindings, and polishings. With the very next scrap shipment it became evident that the lab's scrap-to-alloy ratio, or the amount of scrap generated in relationship to their alloy consumption, was over 25%. In essence, the lab was buying ten (10) troy ounces of alloy to produce seven (7) troy ounces of finished product, which was not optimal.

Jensen also alerted the customer that they were generating a high quantity of grindings considering their alloy use, and suggested that they begin monitoring their process. This included analyzing what appeared to be a tendency to over wax. Better optimization of recycled buttons was also highlighted as a possible area of improvement.

ON-GOING RESULTS:

Today, scrap continues to be shipped quarterly in three distinct categories, just like clockwork. Bottom line scrap results are so reliably consistent that the lab's scrap outcomes can be predicted within a reasonable margin of error, using shipping weights. Thanks to the consistency measured by the after-process recovery percentages and the total pure troy ounces per troy ounce of scrap received, the lab now can characterize their scrap streams within a reasonable range as follows:

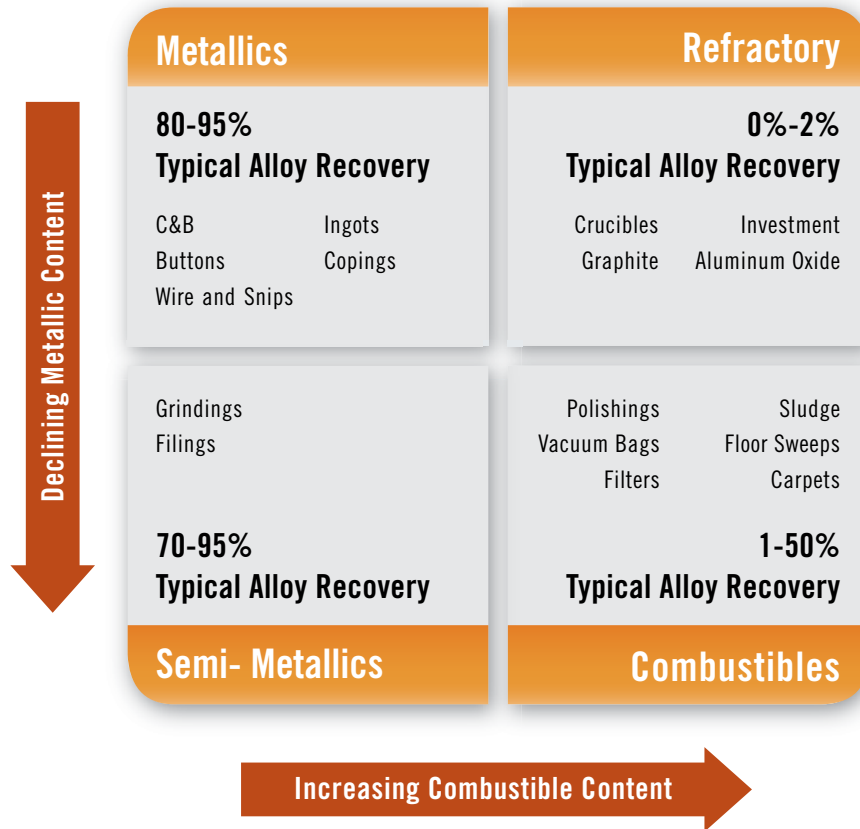
Scrap Type	Recovery Percent ⁽¹⁾	Pure Ozt Per Oz Scrap Shipped
Solids	83.0 - 87.0%	0.649 - 0.699
Vacuum Bags	6.9 - 8.6%	0.052 - 0.066
Polishings	1.8 - 3.6%	0.013 - 0.028

LONG-TERM DIVIDENDS:

Scrap-to-alloy ratios have dropped from nearly 30% to as low as 19%-21%, which has consistently reduced refining and labor expenses and improved metal utilization. On 1,000 troy ounces of yearly alloy purchases, this equates to at least 50 troy ounces of alloy no longer finding its way into the scrap stream, not to mention the on-going savings in labor in metal finishing.

CHARACTERISTICS OF DENTAL SCRAP AND TYPICAL RANGES OF TOTAL METAL RECOVERY BY TYPE⁽¹⁾

(1) Where Expected Recovery % is defined as the total after-process metal recovery divided by the original before processing weight received, stated in percent, where the % reflects what portion of a given material is metallic versus non-metallic (i.e., combustible, ceramic, refractory, etc.).



CATEGORY DESCRIPTION:	DESCRIPTIONS OF TYPICAL COMPOSITION:
Metallics	Castings, buttons, sprues, trees, flashings, snips, solder wire, unwanted ingots, and returned coins
Semi-Metallics	Grindings and filings
Medium-Grade Combustibles	Polishings and vacuum bags containing bench sweeps
Low-Grade Combustibles and Wet Sweeps	Floor sweeps, low-grade vacuum bags, filters, sludge, non-toxic electrocleaning residues, and carpeting
Low-Grade Refractory	Crucibles, refractory, aluminum oxide, and dry investment
Deleterious or Hazardous	Nickel beryllium, mercury, cyanide, sulfates, and chrome

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