JENSEN DENTAL

REFINING SUCCESS STORY II

HOW THE COMMINGLING OF SCRAP CAN UNDERMINE EFFECTIVE ALLOY CONTROL

BACKGROUND:

Jensen Dental encouraged a long-standing alloy account to begin separating its scrap by type because recent indicators pointed to a contaminated mixture of scrap, which was masking its refining results and making those results unpredictable.

FINDINGS:

This lab purchased approximately 150 troy ounces of precious metal alloy each year. The weighted average gold and palladium assay percentages of these alloys was 50% gold and 30% palladium. However, the average after-process assay percentages of scrap lots generated from this alloy mix started to show divergent assay percentages. Although alloys produce different scrap rates based on their application, scrap outcomes in general should reasonably reflect the alloy mix consumed in the lab. So this discrepancy had to be resolved to eliminate concerns about ineffective metal control, as well as the possibility of theft.

With the lab's full cooperation, inquiries by Jensen Dental led to the discovery that:

- The NP waste stream was being commingled with the precious metals scrap, due to lack of collection options.
- The lab's scrap-to-alloy ratios, (i.e., the relationship of precious metals in its scrap compared to the precious metals in its alloy), were 29% for gold and 42% for palladium, both of which were high compared to the desired target range of 15%<20%.

RESULTS:

Jensen Dental's immediate recommendations included a call for more rigorous scrap segregation and collection, using four recommended scrap categories: solids, grindings, polishings, and crucibles. The concern over theft was eliminated in recognition that the new NP alloy was diluting all scrap where the NP portion of the scrap stream added extraneous and non-precious weight to the scrap lot. Jensen also encouraged the lab to send scrap routinely, in either monthly or quarterly shipments, to protect their scrap from metal price fluctuations.

As for the higher than expected scrap-to-alloy ratios, the lab was over waxing and under utilizing buttons, both of which were contributing to inefficiencies in metal casting and finishing. The lab's yield on a specific high noble white alloy was also much poorer than any other alloy utilized in the lab, as illustrated by the 42% scrap rate. This left significant room for improvement, but also raised an issue as to whether this high noble alloy was being properly "marked up" and adequately billed whenever it was required in casework.

BOTTOM LINE:

Sharing and interpreting feedback from scrap results in relation to alloy consumption can illuminate other problems in the lab that would not otherwise come to light, including inefficiencies in labor and alloy use. As such, scrap management and evaluation should remain an important component of overall lab management.

THE COMMINGLING OF SCRAP UNDERMINES EFFECTIVE INVENTORY AND MATERIAL CONTROL BY:

- Introducing unexplained variability and inconsistency
- Distorting the refining outcome as a result of fluctuating material ratios
- Impeding transparency
- Preventing effective lot-to-lot historical comparison or vendor comparison

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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