

Benefits of XRF in Numismatic Assessment

There is great value in avoiding any damage to a collectable coin during assessment as this may diminish its value by thousands of dollars in certain cases. X-ray fluorescence (XRF) analyzers provide a fast, accurate, and most importantly, nondestructive alternative for assessing the metal composition of coins, and are currently used by numismatic professionals (those who study and collect coins and other currency). Here are a few examples of how XRF can be used to detect numismatic fraud and increase the operational speed and efficiency for coin collectors and dealers.

VERIFICATION OF ELEMENTAL COMPOSITION

Many coin series are characterized by a unique elemental signature, meaning that the amount and type of certain metals are clearly defined. Any deviation from this composition would indicate fraud.



Mid-year changes in precious metal content would be detected by XRF

BULK ANALYSIS OF COINS

Analyzing each and every coin by examining its mint year can be a tedious, eye-constraining, distracting, and time-consuming task. With the help of portable XRF, this task can be reduced to a fraction of the time — without having to remove the coins from the wrappers or bags in which they were delivered.



GOLD PLATING DETECTION

Purity levels can vary up to 22K. In addition, they can come in gold (Au)-plated or un-plated versions — which are difficult to distinguish. Some XRF instruments contain patented detection technology that detects gold plating by applying primary and direct tests.



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NAV Tools		
Gold Plate Probable		
	12.1	Kt Gold
Au	50.5	1.1
Cu	39.5	0.9
Zn	6.3	0.4
Ag	3.3	0.3
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- Fake coins are flooding the markets!
- The methods used by counterfeiters are becoming more and more advanced.
- A common method to fake coins is to apply a silver plating to a non-silver substrate, in an effort to imitate a solid silver coin.

FRAUD DETECTION

Portable XRF analyzers can easily detect the composition of the coin, revealing any deviations from the original coin's known composition.

DIRECT MEASUREMENT OF ENCAPSULATED COINS

Valuable coins are often protected by thin foils or encapsulated in plastic slabs and removing those protective covers instantly diminishes the value. Counterfeiters often enclose a fake coin in a protective sheet, assuming and hoping that the buyer is not likely to open it.

Portable XRF can easily detect the composition of the coin by testing through thin foil covers, and provide a very good indication of the coin's composition even in the case of thicker plastic slabs.

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