

Fischer SigmaScope Gold

Analysis of precious metals – searching for counterfeits in coins and bullion



In recent years the price of gold and other precious metals has skyrocketed, making the purity of these valuable components the most important attribute of any precious metal product. Adulterated or fraudulent alloys of high value coins or bullion can lead to considerable monetary losses. The only way to rule out such risks is to test the items using trusted analytical methods. Only non-destructive methods should be used for material testing valuables made of precious metals that can identify the alloy and the precious metal content and detect ignoble inclusions and forgeries.

The electrical conductivity of gold bullion and of all common coins is known. Counterfeits have inclusions on the inside made, for example of tungsten. These inclusions change the electrical conductivity significantly, therefore, using a comparative measurement of electrical conductivity allows for reliable quick and non-destructive identification of counterfeits.

Fischer's SigmaScope Gold product line can determine the conductivity of a sample with unmatched precision. The instruments work non-destructively and utilize the eddy current method according to ASTM E 1004.

There are two models: the SigmaScope Gold C and the SigmaScope Gold B. Each can reliably determine the electrical conductivity of coins and gold bars within seconds and can positively identify counterfeits.

Features include:

- Reliable determination of the electrical conductivity of coins and gold bars
- Clear recognition of counterfeits
- For the testing of bars of approximately 100g to 1 kg (SigmaScope Gold B)
- Non-destructive
- Electrical conductivity values can be performed by scanning the bar surface with the probe or placing the probe on various places of the surface (SigmaCheck Gold B)
- Quick and easy to use - place and read even through a plastic cover (common for coins)

SigmaScope Gold C - for testing coins and thin ingots (up to approx. 100g.)

The SigmaScope Gold C offers 4 unique measurement ranges, technically optimized for authenticity testing of a huge variety of different coins up to thin ingots and detects adulterated alloys and forgeries. The core of a counterfeit coin is often filled with another metal which is hidden by the thin outer layer of the original alloy. You won't be able to tell that the coin is a counterfeit from its outward appearance but this deceit considerably changes the conductivity, making this method ideally suited for authenticity testing.



Testing for counterfeit coins – eddy current method



Counterfeit coins – filled with another metal hidden by a thin outer layer of the original material.

SigmaScope Gold B - for testing bullion (approx. 1 oz. to 1 kg.)

The SigmaScope Gold B can determine the electrical conductivity of thicker gold bars up to approx. 1 kg. in weight. As measurements are taken from both sides, the bars can be analyzed in their full depth, so the authenticity of the alloy or fine gold can be verified. Even concealed inclusions of ignoble materials with matching density (e.g. tungsten) can be detected clearly and identified as fraudulent.



Testing of a fine gold bullion – even under plastic cover



Counterfeit gold bars – tungsten inside

SIGMASCOPE® GOLD C Kit includes:

Sigmatoscope® SM350, FS40LF probe and 2 reference standards with approximately 100% IACS and 31% IACS, carrying case, batteries, AC adapter, USB cable, carrying strap and protective cover, instruction manual, and 1-year warranty.

SIGMASCOPE® GOLD B Kit Includes:

Instrument, probe, carrying case, instruction manual, 1-year warranty.