

Galvanic Bath Analysis With SPECTROCUBE

SPECTROCUBE Benefits for Italfimet Srl

- ▶ Ideal for quality monitoring of plating bath solutions and plating thickness analysis
- ▶ Unparalleled ease-of-use: Just three simple steps to accurate results
- ▶ Intuitive software
- ▶ Compact footprint fits tight benchtop spaces



Photo: Italfimet Srl

The Challenge

Italfimet Srl is a chemical company specializing in the production of electroplating recipes and equipment for the fashion accessories and jewelry sector, with about 50 employees. It is located in Monte San Savino, Arezzo. At the beginning of 2022 it opened a branch in Vicenza and collaborates with foreign companies to market its products in Europe, Asia, South America and Africa.

Specifically, Italfimet Srl produces galvanic systems such as metal plating tanks, electroplating machines, current rectifiers, panels for the management and control of galvanic plating parameters and of the entire galvanic cycle (frame tracking), water treatment plants and galvanic bath formulations for the electroplating of precious and non-precious metals.

When Italfimet Srl supplies its galvanic bath formulations, it guarantees the customer technical support for the optimal use of his galvanic process. The technical support service also includes the periodic analysis of the bath composition to verify that the chemical-physical parameters are within the operating range and, if not, to provide the customer with the appropriate corrections.

In recent years, the chemical laboratory of Italfimet Srl has analyzed an average of 20,000 samples of electroplating baths, with an increasing trend. The analysis of the metal content is carried out using ICP-OES technology. The samples cannot be analyzed as they are, but require dilution and, in some cases, mineralization. This requires pre-treatment, which takes time and can lead to measurement errors.



In 2021, two needs emerged: one was to speed up the sample preparation process to accommodate the increasing number of analyses to be performed, and the other was to establish a new laboratory in a remote location in northern Italy where it would be possible to analyze a limited number of samples quickly and easily. These two needs led Italfimet to look for alternative analytical techniques to ICP-OES.

The Solution

Italfimet Srl immediately focused its research on X-ray fluorescence (XRF) spectroscopy because this technique allows the analysis of samples in their original state. After an extensive market research, they chose the SPECTROCUBE ED-XRF from SPECTRO Analytical Instruments. The instrument has excellent sensitivity and allows not only the main metal components of the bath to be monitored, but also the content of potential impurities with acceptable accuracy. The SPECTROCUBE can also be used to determine the thickness of electroplated coatings.

The Results

The first SPECTROCUBE purchased by Italfimet Srl was installed in their laboratory in Vicenza, where it was not necessary to install mineralization systems and acid fume treatment. The analyzer allowed Italfimet to reduce the number of samples analyzed by ICP-OES, thus reducing argon consumption and analysis costs. The analysis of samples as they are, without the need for mineralization steps, is another major advantage of the technique, resulting in a significant reduction in the chemical risk to operator health and the consumption of reagents such as hydrochloric and nitric acid.

Andrea Capaccioli, Laboratory Manager of Italfimet, states: *"The SPECTROCUBE has allowed us to reduce the time needed to perform metal analysis on both the plating bath samples sent to us by our customers and those formulated in our production department. This has allowed us to perform a greater number of analyses, reduce the time to notify the customer if corrections to the bath composition are needed, and reduce the delivery time of our formulations."*

In conclusion, the use of the SPECTROCUBE has allowed Italfimet Srl to grow both in the service it provides to its customers and in the quality of its employees' work.

About Italfimet

Italfimet designs and finalises turnkey electroplating systems for precious metal finishes for the jewellery, costume jewellery and high fashion sectors, process water treatment plants, exhaust fume treatment plants, precious metal refinement plants and precious metal salts production plants for metals such as gold, silver, palladium and rhodium.

About SPECTRO

SPECTRO is one of the world's leading suppliers of analytical instruments. Its advanced analyzers use optical emission spectrometry (arc/spark OES, ICP-OES), and X-ray fluorescence spectrometry (XRF) in the elemental analysis of materials for industry, research, and academia.



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