

A CASE STUDY FROM
SPECTRO ANALYTICAL INSTRUMENTS

S.M.T. Analyzes Large Metal Samples On-Site Using SPECTROTEST

SPECTROTEST Advantages for S.M.T.

- ▶ Advanced arc/spark OES mobile metal analyzer for precise analysis without compromise
- ▶ Precise measurement of challenging elements such as carbon, phosphorus, and sulfur in steel, and nitrogen in duplex steel
- ▶ Unique iCAL 2.0 diagnostics ensure highest stability despite most temperature/pressure shifts
- ▶ iCAL 2.0 reduces maintenance times/costs. Typical single-sample, 5-minute standardization
- ▶ Fast warm-up and operation
- ▶ Ensured ease of use



The Challenge

S.M.T. S.r.l., located close to Milan, Italy, is an independent laboratory with around 40 employees that conducts chemical analyses for their clients on metal specimens, mostly steel and nickel alloys. Spectrometric analyses were done within the S.M.T. lab using the SPECTROLAB stationary metal analyzer. "This was working fine for samples that could be sent to us by the clients", says Stefano Emedoli, Head of Chemical Department. But what about samples that cannot be sent, like tanks or large tubes?"

So, it became more and more clear that they need to invest in a mobile metal analyzer that could be used directly at the clients' site. "An important objective for such an instrument was to detect carbon content especially in stainless steel, because our clients are usually not equipped with that kind of instruments. So we were looking for an analyzer which is capable of that", states Emedoli.

The Solution

A clear choice emerged: the SPECTROTEST mobile metal analyzer from SPECTRO. "Finally, we chose SPECTROTEST because it is a mobile metal analyzer that offers very good precision and accuracy," reveals lab manager Giancarlo Orlandi. "For the SPECTROTEST analyses of duplex and superduplex steels, as well as nickel alloys are no problem at all."

The SPECTROTEST mobile arc/spark *optical emission spectrometer (OES)* is ideal for many applications in the metal producing, processing, and recycling industries. SPECTROTEST demonstrates superior performance especially when exact metal analysis is required; when materials are difficult to identify; and/or when a large number of samples must be tested.



Users perform a single-sample standardization (in less than 5 minutes) at the start of the day's testing. From then on, the instrument's proprietary iCAL diagnostics help maintain the same standardization — regardless of most temperature shifts.

SPECTROTEST's advanced arc/spark design offers many ergonomic advantages for safe and fatigue-free operation on-site. Its light, slender probe quickly switches between arc and spark excitation. A probe with integrated UV optic is available for special measurement applications; it can also be utilized with arc excitation.

The Results

With the SPECTROTEST, S.M.T. can now easily fulfill the testing demands of their clients — on-site. "The typical testing tasks are material identification and material certification on components that can not be sampled", summarizes Emedoli. For example, they conduct complete analyses on tanks with many longitudinal and circumferential welds at the client's site — or do tests to distinguish many different materials in their clients' storage facilities.

If the measurement is showing any material problem, the S.M.T. team alerts the client and provides a details report with the obtained analysis results. In case an even more precise analysis is necessary, the team can create a sample by taking chips from the original object in order to analyze the sample in their lab. "We are really satisfied with the instrument. It has a good repeatability on a very wide range of elements", says Orlandi. "Furthermore, thanks to the iCAL single-sample-standardization, the instrument can be calibrated very easily and quickly. It is very accurate and also very versatile with regards to different materials."

One example outlines the benefit of the SPECTROTEST for S.M.T.: A while ago, an important customer had a serious problem with a duplex steel component that was ready to be shipped. A full chemical analysis of many welding parts with nitrogen content determination was needed before shipment but this had not been considered by the technical department prior to the construction of the component. "So, they contacted us and asked us to solve the problem as fast as possible", recalls Emedoli. As it would have taken too long to take samples, send it to the lab and conduct a chemical analysis, S.M.T. performed the analysis using the SPECTROTEST. The result: All analyses could be completed successfully and in time. "You can imagine how happy our customer was."

About S.M.T.

S.M.T. S.r.l., located close to Milano, Italy, is an independent laboratory with a strong focus on metallic materials. S.M.T. conducts mechanical tests, chemical analysis, metallographic analysis, and mechanical fracture tests. Furthermore, it offers precision mechanical workshop for specimens production.

About SPECTRO

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



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