

BYD optimizes Metal Testing Efficiency With SPECTROTEST and SPECTROPORT

SPECTROTEST Benefits

- ▶ No compromise: high resolution optical system for probably widest element range (even N, Li, Na), all elements necessary for a complete metal analysis on the spot are available
- ▶ Unique new iCAL 2.0 one sample standardization helps maintain the same standardization – regardless of most temperature shifts and saves on average 30 minutes per day
- ▶ Flexible point-and-shoot analysis with various quick to change sample probes, battery powered operation – up to 800 measurements on a single charge

SPECTROPORT Benefits

- ▶ Unlike handheld XRF, accurately analyzes elements like C, P, S, B, Li, Be, Ca, Si, Mg and Al even at low and critical levels, in only a maximum of 10s
- ▶ Consistent results with unique new iCAL 2.0 one sample standardization combined with self-adjusting optical system – resilient to ambient temperature changes and saves on average 30 minutes per day
- ▶ Effortless point-and-shoot analysis, battery powered operation – up to 800 measurements on a single charge



Photo courtesy of BYD. All rights reserved.

The Challenge

With more than 10,000 employees, the Chinese company BYD is currently the world's only automaker that simultaneously masters the technologies of batteries, electronic motor, electronic control, charging infrastructure, and automobile production. BYD's current electric vehicle lineup comprises seven conventional fields with vehicles running on-road, and four specialized fields with vehicles running off-road. In the field of new energy, BYD has launched various products including solar power stations, energy storage stations, electric forklifts and LED. The firm located in the Guangdong province also launched the straddle monorail known as the BYD SkyRail.

In order to ensure the high quality of their products' components, BYD has to analyze the elemental composition of incoming raw material such as steel plates, aluminum plates and copper rods on a regular basis. In the past this was done by sending samples to an external lab which used an ICP instrument for the analysis. "This process took at

least a day until the results arrived. Furthermore, it wasn't possible to measure the carbon content. And some copper samples couldn't also be analyzed properly", says Huang Wei, Lab Manager at BYD.

The Chinese company decided in 2010 to invest in a mobile metal analyzer. They knew that such a mobile instrument can be easily moved to the workshop and warehouse and could measure carbon as well. So they conducted a market research to find the best analytical solution for their tasks. At the beginning they participated in metal analysis seminars and visited several users of mobile instruments to get an insight into this technology and the vendors.

The Solution

After the completion of their market research BYD finally chose the SPECTROTEST mobile metal analyzer of SPECTRO Analytical Instruments. "We



chose the SPECTROTEST because it delivered the best analytical performance compared to its competitors. We were also convinced by the overall quality of this instrument”, states Wei.

The SPECTROTEST is a mobile arc spark spectrometer that is ideal for many applications in the metal producing, processing, and recycling industries. It flaunts its superior performance especially when exact metal analysis is required, when materials are difficult to identify or when there is a large number of samples to be tested.

It allows users perform a single-sample standardization (in less than 5 minutes) at the start of the day’s testing and the iCAL diagnostics helps to maintain the same standardization, regardless of most temperature shifts.

The complex arc spark spectrometer design offers many ergonomic advantages for safe and fatigue-free onsite operation. The light, thin probe is quickly converted between arc excitation and spark excitation (arc spark OES). A probe with

an integrated UV optic is available for special measuring applications; it can also be utilized with arc excitation.

The Results

Using the SPECTROTEST on-site, BYD was able to measure their samples directly, i.e. they received the results immediately, including carbon. “By using the SPECTROTEST we saved a lot of time and increased our efficiency significantly”, explains Wei.

As the amount of required analyses increased from year to year, BYD decided to buy an additional analyzer in 2019. “Finally we decided for the portable metal analyzer SPECTROPORT. We are very satisfied with the SPECTRO product that we used for many years now”, says the lab manager. “The SPECTROPORT offers even more portability, without a significant loss in precision. We are very happy with our new analyzer that helped us further improve our productivity.”

About BYD

Founded in February 1995, BYD started out in the rechargeable battery business, and entered the automobile industry in January 2003. In the meantime, it started operating in the renewable energy industry. In October 2016, BYD ventured into the rail transit industry.

About SPECTRO

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

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