

A CASE STUDY FROM
SPECTRO ANALYTICAL INSTRUMENTS

SPECTROMAXx: Helping CASS Process End-Of-Life Metals For Greener Recycling

SPECTROMAXx Advantages for CASS

- ▶ Acknowledged reliability for long life and minimal downtime: most likely the best-selling arc/spark OES stationary metal analyzer
- ▶ Ensured accuracy: precise calibration, no contamination, highest stability versus most temperature/pressure shifts
- ▶ Improved ease of use: intuitive operation, simplified operator view, pre-set application profiles
- ▶ Record-setting speed: 1-sample, 5-minute standardization; reduced measurement times
- ▶ Drastically reduced cost of ownership — via lower consumables, advanced diagnostics, easy maintenance



In the remelting furnace at CASS, a stream of recycled molten aluminum will be recast to the customer's precise elemental specifications — per their SPECTROMAXx analyzer. Photo courtesy of CASS. All rights reserved.

To meet some critical environmental challenges, industrial-scale recycling is a key solution. For example, aluminum (Al) from discarded products may be recycled over and over again — each time using only 5% of the energy required to extract and refine new metal.

This green advantage shines brightly at CASS, a unique closed-loop recycling and manufacturing company in West Oakland, California. More than 200 workers manufacture more than 140 million pounds of aluminum, and process over 100,000 tons of ferrous materials annually — for foundries, die casters, and even industrial artists. Their products are used to produce goods for applications including transportation, medical, aviation, defense, semiconductors, and communications.

“We specialize in recycling society’s end-of-life products,” explains CASS CEO Edward Kangeter. “On the ferrous side, we see a large range from appliances to end-of-life machinery. On the nonferrous side, it’s also things like aluminum vehicle wheels and products from extrusion and demolition operations.”

Even compared to other recycling operations, CASS exhibits a signal commitment to sustainability. For example, rather than smelting, it remelts metals: producing quality-spec alloys without using chemical fluxes or chlorine.

The Challenge

The processes used at CASS demand analysis of the elemental composition of constituent materials: both the incoming end-of-life metals stream, and especially the outgoing final ingots and other recycled metal products. To meet customer specifications, operators must precisely determine concentrations of aluminum as well as silicon (Si), iron (Fe), copper (Cu), manganese (Mn), magnesium (Mg), chromium (Cr), nickel (Ni), zinc (Zn), titanium (Ti), lead (Pb), and more.



CASS had utilized a spectrometer for these analyses since its beginning. But eventually, their original instrument no longer sufficed.

"It was huge," Kangeter recalls. "More importantly, with the growth of our operations and increased analytical demands, it was not as efficient and accurate as we needed. So I spoke to other people in the industry that I knew were running best-of-class operations.

"One instrument came highly recommended."

The Solution

In 2015, CASS installed a SPECTROMAXx analyzer in its onsite lab. "The most important factors for us were the consistency of uptime and the quality of reporting capability," Kangeter says.

Its record reliability has helped make SPECTROMAXx perhaps the industry's best-selling arc/spark optical emission spectrometry (OES) analyzer — with more than 13,500 installed. Its fast, precise, cost-effective measurements add essential certainty in critical applications such as recycling and foundries, which demand productivity, traceability, and profitability at every step.

Users get easy access to highly accurate, ultrafast information so they can react to changing process conditions. The instrument's famously solid design resists fluctuations due to ambient temperature changes. SPECTROMAXx also provides drastically reduced cost of ownership — with lower consumables such as argon (Ar), plus advanced diagnostics and easy maintenance to increase availability and prevent expensive downtime.

The Results

According to Shaun Caughell, CASS furnace operations manager: "SPECTROMAXx is supplying us with chemical analyses of whatever we test on it — samples from our manufacturing process or inbound materials, ferrous or nonferrous. For example, for alloys, our customers provide specs on whatever alloy they want us to cast-produce for them. We're always working within a range of elements and impurities the customer specifies. So we depend on the instrument's accuracy, reliability, and ease of use."

"SPECTROMAXx is an important and critical path to our ability to manufacture chlorine-free, chemical-free alloy," says Kangeter. "Through exact analysis, it allows us to ensure quality control, so we can market our alloy in a tighter elemental range — which provides a premium price in the marketplace.

"We encourage our clients to use it when receiving end metals, and to qualify what we ship them. So we're all on the same platform, using the same standards."

Finally, Kangeter praises SPECTRO's service. "Their preventive maintenance program is excellent — and is a large part of why we have the uptime and efficiency we have achieved.

"We are working with the city of Oakland to relocate and build a new site: a greenfield facility. So to facilitate increased production capacity, we're purchasing additional SPECTROMAXx instruments!"

About CASS

CASS is a unique closed-loop recycling and manufacturing company in West Oakland, California, USA. Founded in 1969, today it employs 200+ team members to manufacture over 140 million pounds of aluminum and process over 100,000 tons of ferrous annually. It's committed to reducing its environmental impact through recycling end-of-life metals and producing sustainable aluminum products.

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), 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. SPECTRO also is committed to enabling a sustainable circular economy.



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