



## Notes on Clean Energy

# Playing our part

## Cleaner copper mining in a carbon neutral world

**In the second in a series of notes, Ellen Thomson, PGNAA & Minerals Senior Applications Specialist, examines what Thermo Fisher Scientific has to offer miners working towards greater sustainability.**

In my first Notes on Clean Energy, I looked at some of the overarching themes shaping today's mining industry, outlining the fundamental challenge of meeting net zero as demand for metals rises and ore grades fall. In my second, I'm going to start to focus on solutions and what we at Thermo Fisher Scientific bring to the table.

### **The power of data**

Our information-generating portfolio for miners centers on samplers, cross-belt and slurry analyzers, and belt scales. Together, these products deliver elemental measurement and traceability in real time, across the mining-to-metals value chain. They provide the data miners need to operate mines and concentrators more efficiently, and to recover maximum value per tonne of ore. Better operation relies on identifying what is compromising performance in real time, and on developing advanced process control philosophies with machine learning algorithms to drive continuous improvement. Reliable and accurate digital data is the first step towards these goals.

For example, real-time grade measurement is the route to better block models and a knowledge-based approach to ore blending. It allows you to take control of what's entering the concentrator by putting in place feed forward loops to ensure efficient processing. Low or marginal grade material can be taken out at the earliest opportunity before investing any processing effort.

As the ore proceeds through the concentrator, comprehensive, real-time, integrated metallurgical accounting provides a basis for the confident control of your asset. It enables the construction of a digital twin, an accurate and complete digital version of the concentrator, for remote operation and rigorous optimization. And, it's not just the product metal that can be tracked; impurities of concern can be monitored and controlled to meet product quality goals or for environmental compliance.

## Our approach

Many of us are engineers and we work with our customers, and other providers, as partners. We know our strengths and recognize how our technology complements that of others, and how we fit in the ecosystem of technology providers that helps miners to meet their goals. We have worked with mining companies for decades and that experience shapes how we develop new technology and existing products, as well as our outstanding services provision post installation. We understand that you face constraints – financial, of course, but technical, operational, and environmental ones too – from emerging regulations to a lack of trained personnel. We continue to innovate to tackle relevant problems and to invest in helping customers to use our products to maximum advantage.

And, like every other company, we're working hard on our own sustainability targets. Committed to reaching carbon neutrality by 2050, we've set emissions reduction targets through the Science Based Targets initiative (SBTi) that include a commitment to its most ambitious guidelines. We're making our facilities more energy efficient, increasing our use of renewable energy, and reducing waste across our operations. We're using our innovative skills to look inwards as well as outwards.

So, what can we bring to the table? I'd point to three key things:

- Great technology – efficient solutions that are reliable, well-engineered, and relevant.
- Experience, expertise, and a positive approach to collaboration.
- An ambitious sustainability agenda that mirrors that of the mining industry.

In my next notes, I'm going to look in detail at the issue of ore sorting or ore preconcentration, specifically, the analysis needed to make it happen. In the meantime, if you'd like to find out more about our progress towards greater sustainability, then go to [thermofisher.com/copper](https://thermofisher.com/copper).

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