

Mondo Minerals: Industrial PC for harsh external conditions



→ In the manufacture of coating talc used by the paper industry, reliable measurement is critically important. Mondo Minerals Ltd., based in Vuono, Finland, is a refiner of talc mineral. The company uses Beckhoff IPCs for controlling its quality measurement system in order to meet the continuously growing demands of the paper industry.

Mondo Minerals Ltd. produces some 600,000 tonnes of talc pigments for paper surface coating a year. Talc is not easy to process. Refining the slurry requires very specific know-how because all the raw materials repel water. As the customer, the paper industry also demands a lot of the product: Paper coating must be opaque and print quality must be first class. Brightness and smoothness are also important criteria. "Talc is a good coating material because it settles well onto the papermaking pulp. It's a material derived from rock," explained Jouni Liimatta, who is an automation technician at Mondo Minerals.

The Vuonos plant has mills incorporating the latest technology to grind the talc mineral into small particles of the right size. In order to 'understand' the grinding process and to be able to monitor the particle size to ensure uniform quality, Mondo acquired an online particle size analyzer. "It was difficult to find a partner because the conditions in our plant are demanding, partly because of the temperatures," says Liimatta. "Eventually a laser diffraction analyzer was procured from England." All we needed now was a reliable partner for the PC-based automation. "That's when we found Beckhoff. They were able to meet all our performance requirements," Liimatta continues. "An important factor was the speed of the Beckhoff IPCs."

2,000 samples per second

Beckhoff's Industrial PC C6150 was selected as the 'measuring platform' for particle size analysis. The PC C6150 gives absolute measurements of 2,000 samples a second. The user interface, a Beckhoff Control Panel located on the shop floor in the plant process premises, is situated some 65 meters away from the PC in the control cabinet.

The obvious advantage is that not a single person needs to go and measure the process in harsh ambient conditions. The solution also eliminates the possibility of human error. The diffraction analyzer is not calibrated. Instead, the sample data received from the production process is collected and the measurement data is compared against a recorded baseline. The data collected forms a new database each week, which can easily be re-utilized.

"For us it's vital to have a reliable benchmark for the automation process to succeed. At present we use three of the Beckhoff Industrial PCs deployed, and they've had no hardware malfunctions at all."

A never-ending road

"The paper industry's requirements will in no way lessen in future: Machine speeds are increasing and paper must be brighter than bright. The company that can produce better quality holds the trump cards," Liimatta explains. The decisive competitive factors in producing coating talc are energy efficiency, quality and productivity. Mondo is convinced that online measurements can improve the product significantly. "Feeding the measurements to the production process is not easy, but in the long run it will be well worth the effort. The philosopher's stone for achieving that is a highly reliable automated quality measuring system," concludes Jouni Liimatta.