

Done and dusted

Sometimes it can be useful to get an outside perspective on a tough problem. Stefan Engardt and John Korpi of **Sintrol** introduce an automated, online dust monitor with a heavy industry heritage that's set to blow the cobwebs off mining dust suppression strategies.

Earlier this year, coal miners in Queensland, Australia, began presenting with a deadly condition that hadn't been seen in the region for decades: coal workers' pneumoconiosis, commonly known as 'black lung' – a result of long-term exposure to coal dust. It was a warning to operators everywhere that they needed to do more to protect mines and workers from the health hazards, equipment damage and explosion risks of dust.

However, while dust can be controlled with filtering and ventilation, managers often run into problems when it comes to continuously monitoring ambient dust levels. Manual methods like grab-sampling often involve a significant delay between capture and testing of samples, with no way to identify the dust source. The real-time monitors that are available may be unsuitable for use underground or employ sensors that work by attracting particles, resulting in dust build-up and reduced accuracy.

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Breathe easy with Dumo

Finnish process-measuring specialist Sintrol has been manufacturing Dumo, a compact 24/7 online dust monitoring system, for several years for use in the sugar, paper, cement and other industries. Now, the company is in the process of bringing its technology to the mining industry.

“We had the opportunity and there were requests from every part of the world,” says Sintrol business unit director Stefan Engardt. “People saw that our products could be used in a mine and we saw no reason why not: we have 24/7 instruments that monitor for the unexpected.”

“What we've learned is that all the mines are struggling with dust,” adds sales director John Korpi. “They have good dust-control equipment in place and everything is engineered to handle it, but if something goes wrong, there's nobody there to help them monitor continuously.”

Dumo uses inductive electrification to measure the concentration of ambient dust particles within the

respirable range of 0.5–200.0µm around the clock, without the need to attract them to its sensor probe. At the first sign of a hazardous rise in dust levels, Dumo can send an alarm signal and immediately activate filters, ventilation and dust suppression systems.

Engardt believes that while Sintrol is a newcomer to mining, decades of experience in other industries have prepared it well for this opportunity.

“We have 30 years of experience measuring industrial applications and harsh work conditions, so we have knowledge that is much more diverse than just dust,” he says. “We know how to combine it with mining applications and see the bigger picture.”

Sustainable and certified

The system works both above and below ground, and multiple units can be networked with each other to help isolate a dust source in real time – which can be crucial to prevent incoming dust through ventilation ducts, and helps managers determine the most effective locations to implement dust-control measures.

In one Chinese coal town, a network of Dumo units transmits real-time information on ambient dust levels to a central control room, and automatically activates sprinklers if levels increase beyond safe limits. Added to the convenience of the 24/7 automated system, limiting water use for dust suppression means mine operators can adhere more easily to their sustainability goals.

Sintrol is ISO-certified and Dumo has recently been awarded MA certification in China for underground use in coal mines. A 29-piece monitor network is currently in use in a subterranean South African copper mine, with units undergoing testing in a platinum mine there, and another mine in Canada. Along with its Chinese credentials, the Dumo EX for high dust values is certified for use in Dust Zone 22, and the Dumo EX G for potentially explosive areas is certified for Gas Zone 1 and Dust Zone 21.

Manual grab samples have their place, but it's time for mine operators to stop relying on them as their primary method of measuring dust. The future of dust monitoring is automated: continuous, fast and precise. ■

Further information

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