

Dust Control Program Protects Workers

Background

An underground multi-metal mining complex in North America initially used a competitor's foam surfactant to reduce the amount of dust generated in their primary crusher. Because of the environmental sensitivity of their operation and the product's potential negative effects on their flotation process, the mine looked for technologies and programs that would optimize dust control without impacting their process.

Problem

Dust control is important at the underground crusher and conveyor operations to reduce atmospheric dust and heavy metals such as lead. A foam surfactant was initially utilized to control dust, but its performance was variable and it appeared to interfere with the flotation process. The mine had considered water-only sprays, but the high volume of water required to control the dusting produced very wet ore that could lead to operational issues and safety concerns during handling.

The mine turned to ChemTreat to provide a dust suppression program that would reduce dust in the work areas without adding significant moisture that could lead to outages. The program chemistries also must not negatively impact their flotation process.

Solution

ChemTreat's laboratory and technical personnel worked with the mine's environmental and operational groups to discuss and prescreen potential dust control chemistries. As the copper mine processing operation included a flotation phase to recover various metals from the process, a key property of any dust control

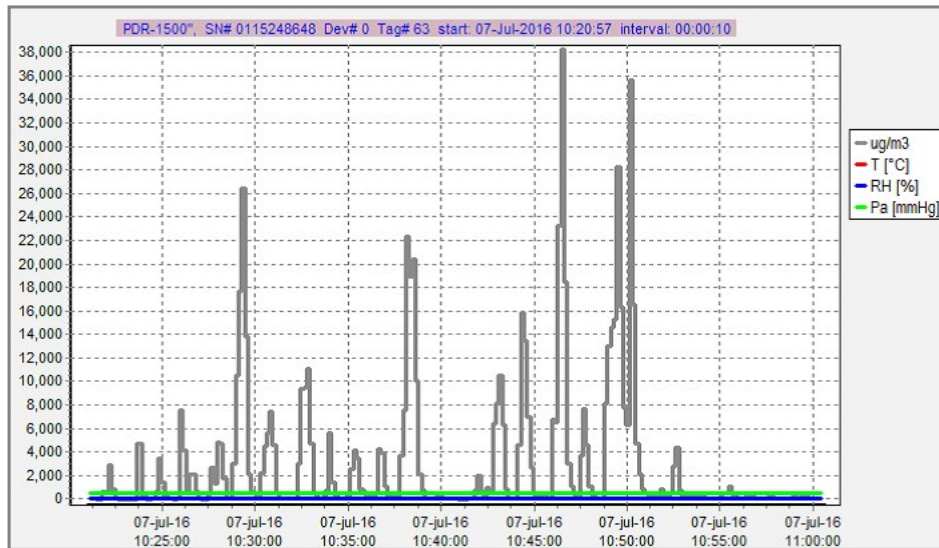
chemistry is that it have no negative impact on flotation. Testing of ChemTreat DT9056 showed compatibility with the site's flotation chemistries and process with no adverse effects on kinetics, phase disengagement, or metal selectivity. This led to a trial at the mine's primary crusher.

DT9056 was diluted with water and sprayed with air to create foam inside the crusher area where excessive dust was being generated. A dust monitor was used to sample the ambient air before and during chemical application. As seen in the results, the air quality was greatly improved from a high level of over 38,000 ug/m³ to a high level of under 4,600 ug/m³, and was consistently under 400, averaging less than 170 ug/m³.

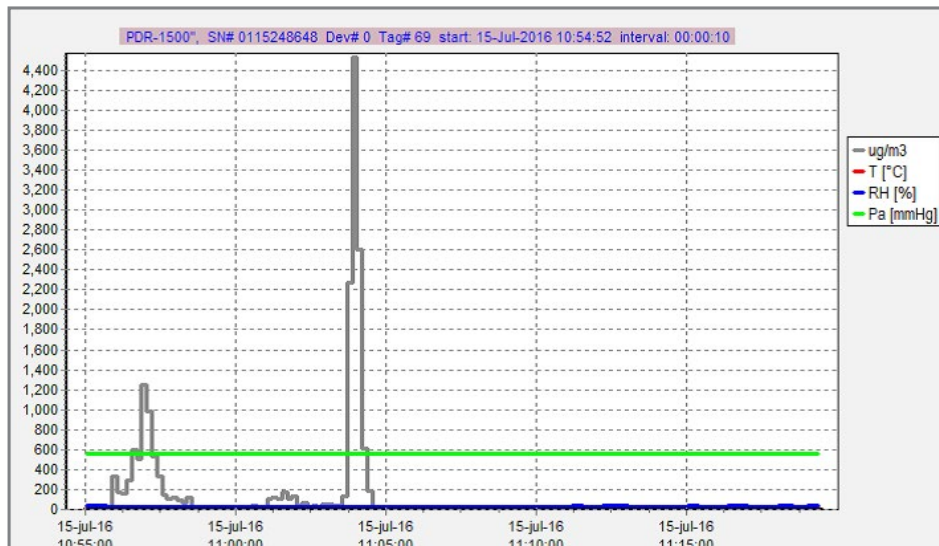


Summary

ChemTreat DT9056 was extremely effective in controlling fugitive dust in copper mine crusher operation. Mine personnel validated its performance in reducing dust and improving the site's environmental impact without any negative effect on the flotation process. The copper mine was clearly satisfied with ChemTreat's approach, technology, and program support.



DUST PARTICULATE LEVELS WITHOUT DT9056 CHEMICAL TREATMENT



DUST PARTICULATE LEVELS WITH DT9056 CHEMICAL TREATMENT